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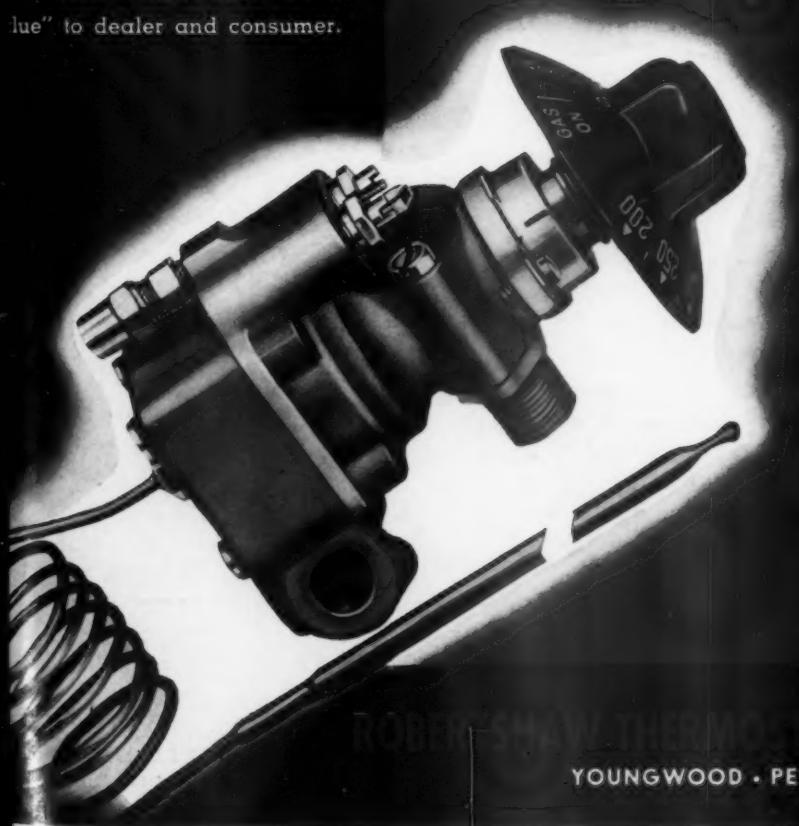

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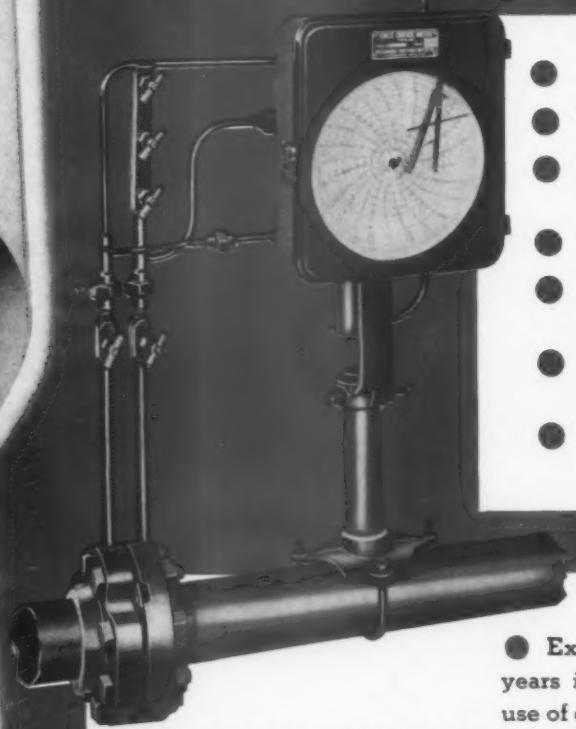

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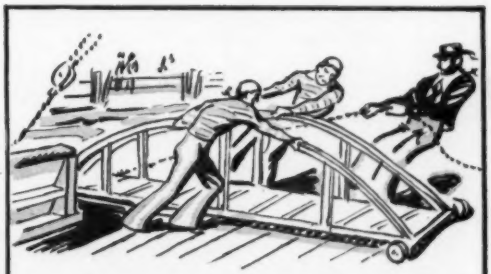

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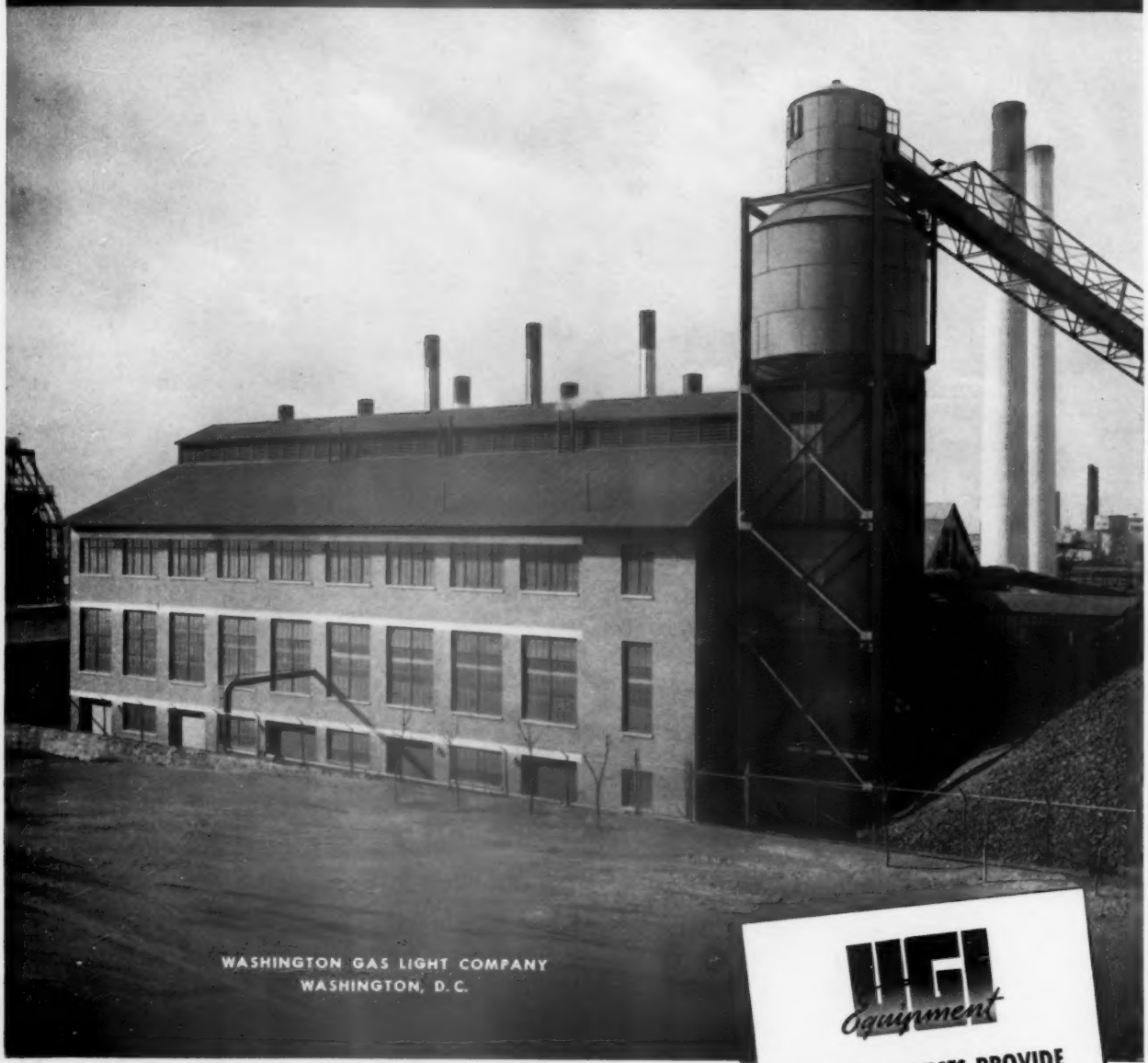

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MARCH
1939

AMERICAN
GAS JOURNAL

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No. 3

The President's Address

The New England Gas Association Thirteenth Annual Business Conference

by
George S. Hawley

President, The New England Gas Association
President, The Bridgeport Gas Light Company

GEORGE S. HAWLEY

FOR some years speakers and writers, from within and without, have called attention to our shortcomings. Many an address has been given on the subject, "What Is Wrong with the Gas Industry?" We all know what is wrong with it, but how many of us have stopped to consider what is right with it? I hope that this convention will give us some idea of what is right with it, disclose some of the good things that have been done and others in process of accomplishment, so that we may renew and strengthen our faith in the industry, which is old yet new, prosaic yet romantic, and almost universal in the multiplicity of its applications.

My purpose at this time is to call attention to some of the things which cause me to believe most emphatically that our industry is not only a continuing, deep - rooted, modern necessity, but is destined to move forward more rapidly than ever as one of the greatest industries of service in the country today,—most essential, useful, and beneficent.

This year 1938 closes the most unusual and fantastic decade through which this country has ever passed. "Flying high, wide and handsome" on fleecy clouds of imaginary prosperity and security, we were suddenly plunged to the lowest depths of despair. Strangely enough, instead of attempting to bring about recovery, the political opportunists who became our leaders by the decree of a Fickle Fate, performed weird experiments upon the body politic, defied economic laws, reversed the Biblical rule and proceeded to take "from him that hath" and give "to him that hath not", conceived a plan of brotherhood based upon force, set up a form of so-called "planned economy" in which business was maligned and crippled, and class set against class. (And may forgiveness long be withheld from those who have fomented hatred and strife).

While some good has been done during these troublous times (although largely as bi-products of attempted excessive reforms) business suffered a terrible set-back, and utilities were selected as one of the principal targets. But during all these weary years, and this is the point which I wish to emphasize, the gas industry successfully weathered the storm, and at the same time stood staunch and stable in all its activities, perhaps the most stable of all.

One always hesitates to draw comparisons to the detriment of others, yet the only way we can tell how high we have climbed is to look below and compare our position with that of others, and so I shall make a few comparisons to show where we stand.

Of course all companies are not alike, some have not been as fortunate as others, but the great group of operating companies as a whole make up this splendid industry which has more than kept its place in the parade of the years. I am thinking about its stability as compared with other industries. Since I cannot take the time to go into detail, I shall mention only certain points, leaving it for you to look up the comparisons for yourselves and be convinced.

Take first the great disgrace of the country, that of unemployment, which is almost as bad now throughout the country as it was at the beginning of the depression which began when the country swapped horses while crossing the stream. But there has been no unemployment in the gas industry. It has not made any public boast, but it has kept right on with practically all of its employees. How many other industries can show a similar record? Then too, in comparison with others, we have been able to operate without marked changes in relation to other important factors which go to make up the business as a whole. To carry on in this way has not been easy of accomplishment, but the industry has kept steadily marching along, and at the same time giving complete service to the public.

From our vantage point on high, suppose we take another look below us, this time at some of the business indices. A glance at them prompts me to ask this question: Have you ever plotted a curve of the sales of manufactured gas and compared it with the sales of other industries, or with the curve of general business, or other statistical data? If not, plot one, and you will be delighted and perhaps astonished to find that the dip of the gas industry curve at the lowest point was not nearly as low as the others, and that in making its recovery from the low point it took and kept the lead. For instance, take the curve of the Standard Statistics Index of Industrial Activity and you will find that Industrial Activity from 109 in 1929 slid down to 52 in 1932, and according to the Herald Tribune's Index, General Business dropped to 42, Production to 38, Distribution to 55, Financial Activity to 29, but the manufactured gas industry declined to only just under 100, and then immediately proceeded to climb gradually to 115 in 1938, the Industrial curve only reached 96 in 1937 and immediately dropped again to 75, General Business climbed to 82, Production 99, Distribution 79, Financial Activity 46. Thus it will be seen that while other businesses showed great decline and moderate improvement, the gas industry during these years has kept well above 100, except for one brief point where it just slipped under the line, and now it is within a hair of the highest point, which was reached in 1930; that is, in 1930 the high was 116, in 1938 it was 115.

Keeping step with this development, and as a part of it, practically all of the other factors in the industry also show new highs. I hope that someone of the other speakers will speak from the pinnacle where gas sales, number of customers and appliance sales now exultantly stand as a reward for their accomplishments, and perhaps we can hear something about the steps by which they climbed to the top in 1938.

There is another favorable factor which I have not seen mentioned, but which is of great importance. I refer to the deep interest and energetic activity in gas on the part of the chief executives of combination companies. Careful investigation disclosed the indisputable fact that gas forms the solid backlog of these companies, holding even steadier than electricity in times of stress, and also offering a field of substantial and successful development in all its phases, so that the belief is general, and I might say enthusiastic, that from the standpoint of stability, economics and economy gas is essential and useful to the public which demands it, as well as profitable to the industry which makes and sells it.

As an example of this enthusiasm and confidence, I quote a bit from a recent advertisement of one of our largest combination companies: "The trend today is to gas. It was a good year for gas in '38. 2790 new installations of gas heated equipment! We're backing the CP Range drive 100%, exclusively displayed in our showrooms since August 15th. Sold 27,034 Servel Electrolux Gas Refrigerators! Gas heater sales jumped 28.2% over 1937. Look at those figures and you'll see why our New Year's resolution again is, 'To support the national drive selling gas for the four big jobs again in 1939.'"

Of similar import, and of no small moment, is the definite change in the atmosphere surrounding the great army of people who make up the gas industry itself. Up to a comparatively short time ago there was a somewhat dejected air which hung over their countenances, but now there is brightness and confidence and optimism. The important thing about these changes is that they are not based upon fancies, but upon facts.

And here is something which is of interest, and also somewhat of a mystery to me. For some time and up to a year or so ago domestic sales had been falling off. We all investigated the matter, and finally concluded that one of the main reasons for the decline was the changed habits of living on the part of our customers. Instead of eating too well and often, modern custom called for a cup of coffee in the morning, a dill pickle sandwich at noon, and a light evening dinner prepared largely with the aid of the blessed can-opener. Another reason was supposed to be electric and oil competition, and another was the oil house heater which also supplied hot water. Much to our surprise, perhaps a year ago the domestic load increased quite generally and has continued to increase. So our diagnosis must have been wrong, at least in part. I should like very much to know the real reasons for this change. It would be illuminating, and might be helpful.

Now what shall I say about developments in the art of gas-making, in research, in new processes, in appliances? You are all familiar with them, — the Certified Performance Range, the soon-to-be-produced Certified Performance Water Heater, lower production costs by the use of different and varied and new processes, and on through quite a list of rather imposing things.

We have had and now have kitchen heating, and along comes the heating of individual apartments in large buildings by using a small warm-air winter conditioned furnace for each separate apartment. Another method is the heating of 3 or 4 or 5 rooms using a small single heater in one room with a blower. While I understand that technically it ought not to do so, nevertheless in practice it keeps a surprisingly even temperature in all the rooms.

The basementless house is announced, and with adequate insulation it holds possibilities for gas; and, of course, true air-conditioning is dangled temptingly before our eves as soon to be commercially possible within the limits of the average pocketbook.

In the sales field there is strong tendency to embark upon the manpower program; that is, doubling the number of salesmen in the belief, based upon experiments, that it will result in marked increase in sales.

I might go on, but I think that I have said enough to convince you that the future offers greater success than ever to the gas industry.

So the industry has been growing, developing, advancing, notwithstanding its various handicaps, and again I say that while smiling reformers have been looking at the delectable hills of Utopia, and the politicians longingly edging towards politicians' paradise where pockets are lined with taxpayers' gold, radicals plotting to overthrow our democracy either by legislative edict or otherwise, business being hampered by unfair and untrue propaganda, by unlawful and unethical government competition,— through all these vicissitudes the gas industry has steadily kept on in the performance of its duties to the public.

These few facts that I have mentioned, with others that will readily occur to you, maintain my already complete faith in the industry and increase my enthusiasm for its future, which is amply assured. So long as coal continues to be the source of heat, so long as heat is required for human necessity and comfort, just so long will gas hold its place in the sun as an essential and permanent servant of the people, and we can feel proud and grateful to be identified with this industry which has so quietly and effectively pursued the even tenor of its way and now stands in the forefront of the great industries of the country.

Industrial Gas and the Competitive Angle

Part 1

by
Raymond F. Mann
Wentz-Mann Company
Kenmore, N. Y.

A SERIES of articles on industrial gas subjects, written with the main object of helping the entered apprentice in that field, would be far from complete if it omitted a discussion of the competitive angle. The supplying of manufactured or natural gas within a community is commonly considered a monopoly, and so it is. However, when the industrial engineer attempts to sell his product to one of his local plants he finds that all a monopoly means is that there is no one else out helping him convince the prospect that gas is the best of fuels. Actually he encounters active competition. Nor is this competition always personified by some individual engaged in selling another fuel. Thus, the solid fuels are rarely represented by industrial engineers making regular calls on the various plants and soliciting business; but the pressure of their competition is not a matter of doubt.

When competition exists even in the absence of salesmen it proves our first, last, and only maxim regarding selling; i.e., the consumer buys the fuel which he is convinced costs him the least, *all things considered*. In the last three words lie our salvation and our challenge as salesmen. Obviously a dollar invested in soft coal buys more heat units than one invested in gas. As a general rule the same is true if the dollar is spent for fuel oil. If, however, we can demonstrate that more of the Btu's in a dollar's worth of our fuel are available, and in actual practice, will yield a greater amount of useful work than in a dollar's worth of our competitor's fuel; or if we can show that gas more than makes up the difference in bare fuel cost by a saving on some other item connected with manufacture, such as labor, time, quality, rejections, etc., then we have proven that "all things considered" gas is cheaper.

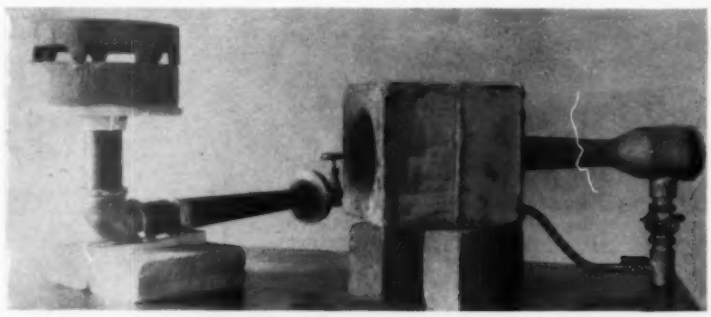
The writer spent fourteen years selling industrial gas, and has talked to his share of factory owners, managers, superintendents, and engineers; but he fails to recall a single instance where gas was sold because of any sentimental attachment on the part of the consumer for our commodity. Nor was it bought because it was clean unless cleanliness had a definite dollar and cents value, nor because it was a flexible fuel unless flexibility in some way saved that plant money, nor because it answered so well to automatic control unless such control meant money saved in labor or spoilage. Business today is too competitive for much sentiment, and only those survive who produce as much as they can for as little expenditure as possible.

Thus our success as salesmen will depend on our ability to find out in just what ways and to what degree our fuel can reduce the *overall cost* of manufacture of the article in question. If in a certain plant gas substituted for coke would eliminate a certain amount of labor, increase production to some extent (thus reducing overhead), decrease the number of pieces rejected, improve working conditions and hence reduce labor turnover; and the total value of all these items is greater than the difference in actual fuel bills for coke and gas, then the so-called "more expensive fuel," gas, can be sold to that management.

This principle is so obvious that it hardly seems necessary to state it, and yet I venture to say that its disregard is at the root of more failures in selling than any one other thing. Every text book on selling boils down to this:—put yourself in the other man's place and give him what he is interested in. The factory operator is interested in reducing costs. Expressed another way, in competitive selling your object is to convince the prospect that your particular proposition offers him the greatest return for his investment.

It might be well to give a little thought to some of the phrases in that last sentence. The first phrase is "competitive selling." The sale of industrial gas is obviously highly competitive. If the prospect is now using some other fuel, you must compete with his satisfaction with that particular fuel. If on the other hand a new process is to be installed, you must compete not only with other salesmen on the ground but also probably with an opinion in the back of the prospect's mind that gas would probably be fine but it would be too expensive. In either case competition is involved; and the only way you can hope to be successful in the ensuing encounter is to know all the features, good and bad, that characterize the competing fuels. The merits of gas must be painted against a background of the failings of the other fuel or fuels. Hence Rule 1:—Know your competitive fuels thoroughly.

The next phrase to examine is "to convince." A sale only results after conviction or, expressed another way, when the prospect believes in your story. It is here that personality en-



Above illustration shows on the left an 8" refractory burner used to convert portable ovens with round fireboxes from coke to gas firing. On the right appears an S. C. 9" tile burner, a type used in many conversions.

ters. The prospect must be led to have confidence in you. Your approach is generally easy. You represent a large, substantial, and well known corporation. If your company is respected for its fair dealing you will have no difficulty in getting a respectful hearing and the opportunity of presenting your case in full. If there is any local feeling against your company or the prospect nurses a private grudge, the task is harder but in either case the responsibility for further progress rests upon your shoulders. Eventually the consumer must be sold on you and your ability to solve his problems.

I know of no way to generate that necessary confidence but to prove to the prospect that you know what you are talking about and that you are perfectly cognizant of his particular problems. High pressure selling and bluffing are of no avail in selling industrial gas. Nor are exaggeration or understatement. Your type of selling is an engineering proposition, and engineering of all the arts demands facts and figures. After all, you are interested in selling the *permanent* use of gas, and the consumer soon has the opportunity of verifying your statements. If the cost on gas exceeds your estimate by more than an allowable margin of error, you either lose a customer or make an enemy. Neither will benefit you or your company.

To prove your familiarity with the consumer's process you need to "speak his language." Every trade has its own peculiar terms, and the first step for the apprentice industrial engineer is to learn the terms of the various gas-using industries that he must contact. Thus in foundry work he should know the meaning of cope, drag, flask, gate, riser, binder, drier, etc. In a forge shop, the meaning of flash, bulldozer, burning, upsetting, cut, and the like are important. In the bakery he finds such words as peel, strap, spring, sponge, sweets, pan bread, hearth bread, etc. Normally the oven or furnace or fuel using equipment is only one link in a long chain of manufacture; but to understand that link and its importance, one must know the picture as a whole. Hence our Rule 2:—Acquire a working knowledge of each prospects business.

The last important phrase in our sentence is "the greatest return for his investment," and this we have already covered in our discussion of "all things considered." Naturally the only way that you can competently discuss the improvements that gas will bring to the process in question is from a background of comprehensive knowledge of gas combustion and utilization in all its phases. Thus Rule 3:—Know your fuel thoroughly.

To sum up, in order to sell industrial gas it is necessary to know three things: the process involved, your fuel, and your competitors' fuels. Like a milking stool, all three legs are essential before you can settle down to business. Previous articles have dealt with the combustion of gas and some of the basic industries wherein it is used. This article and the one following deal with the competitive side of the picture, and are, we hope, as free from prejudice as possible.

A. The Solid Fuels

The importance and value of the solid fuels, coal and its derivative coke, to the nation is, of course, incalculable. After all, there wouldn't be any manufactured gas industry without coal; but, by the same token, if gas as a fuel did not have certain very definite economic advantages over coal as a fuel there wouldn't be any manufactured gas industry either.

Generally speaking, in coal we have the cheapest supply of available heat, but unfortunately in a form difficult to transport from place to place, difficult to release and convert into useful heat, and difficult to control. Expressed another way, the "form value" of the solid fuels is very low in comparison with the form value of the liquid or gaseous fuels.

Coal, being a solid, is in a shape difficult to move from place to place. Gas or oil flow through a pipe line, and electricity along a wire; but coal (disregarding for the moment powdered coal which has a limited mobility) must be moved in freight cars, trucks, wheelbarrows, and shovels, all involving manual labor and attention. Its progress from the point of origin to the plant and then through the plant to the point of utilization means the tying up of man power with its accompanying costs and complications. Firing, unless by mechanical stoker, means more labor; and even stokers have to be filled and attended to. The very control of combustion calls for presence of labor. The residue, ash, after firing requires still more labor for its disposal. The dust and dirt generated means labor for cleaning, painting, redecorating. Thus, labor, labor, labor, an item of increasing cost, increasing undependability, an increasing problem. Few things interest management more today than the possibility of reducing man-power and its uncertainties. Coal demands labor as does no other fuel.

The second item unfavorable to the solid fuels is their relatively greater resistance to conversion into useful heat. All fuels must be gasified before their heat is available in a form that can be utilized. This is a serious complication with the liquid fuels, as we shall see, but a far more serious disadvantage with the solid fuels. Coal must first be heated to temperatures that will distill off the volatile portions, and then still higher until the combustible elements break down and yield gases capable of combustion. All this must be done in the presence of sufficient air to complete the chemical reactions involved. Fresh fuel must be available as the first is consumed, and the residue from combustion (ash) removed. These needs can only be met by means of a large fuel space, a larger combustion space, grates, ash receiving space, and a medium known as draft for pulling the necessary air through the fuel bed. Further, flue passages beyond the combustion space itself must be large, reasonably short, and of limited baffling in order that they will not clog with the fly ash carried out by the products of combustion nor reduce the usually little more than adequate draft. Heat transfer is largely by means of radiation from the incandescent fuel bed, hence calling for as great a proportion as possible of direct heating surface. All these items mean in the aggregate a larger furnace, more floor space, and greater costs of construction, maintenance, depreciation, etc. All this is in addition to a very sizable requirement for fuel storage space near the equipment itself, a floor space often extremely valuable and frequently badly needed. Just as the freeing of basement space formerly occupied by the coal bin and its conversion into a more desirable use, such as recreation room, dark room, play room, etc., has often sold a gas househeating unit, so too salvage of the coal storage space in a factory has often sold the management on gas.

Grates are another item of expense not always negligible. It is surprising how costs such as those for coal shovels, wheelbarrows, ash barrels, clinker bars, and grates, all seemingly insignificant, mount up.

Item 3 is difficulty of control. Control is chiefly exercised through draft, the pull upon the fuel bed which acts to draw the air for combustion up through the coal. A strong draft means more air mixed with the fuel, more fuel consumed in a unit time, and more heat released. Draft may be generated by natural means, chimney pull caused by the difference in

weight between the column of warm air within the stack and the column of cold air outside the stack; or by mechanical means, a fan or blower. In most cases natural draft is used; and since this varies with outside temperature and atmospheric pressure, and is sometime affected by wind velocity and direction, it varies from day to day, from hour to hour, and thus exercises a varying effect upon the combustion of the coal. One day the fire is strong and work comes out fast. The next day the fire is lazy and production slows up. All in all, this is hardly a condition that fits in with the modern machinery of manufacture or is looked upon with any favor by those responsible for meeting production schedules.

Control of atmosphere is likewise practically nil. An excess of air is customary to drive to completion the chemical reactions involved in the burning of coal, and hence the atmosphere is usually oxidizing. With insufficient air present, the reducing atmosphere so obtained would be at the expense of the production of considerable smoke and soot, and would introduce undesirable working conditions. Of course the exact maintenance of any desired atmosphere, reducing, neutral, or oxidizing, an easy matter with gaseous fuels, is out of the question with solid fuels as ordinarily handled.

Thus the basic disadvantages of the solid fuels are all linked inseparably with their physical form, their dependence on labor, their inflexibility, and their uncontrollability. All these items are more or less easily assessable in terms of dollars and cents, and form in the charges against such fuels a total that for most purposes is more than ample to balance their sole advantage of low selling price.

Other disadvantages come to mind that perhaps should be listed here because in certain places and times they assume some degree of importance. One is the item of a stable price and the assurance of non-interruption of supply. With supply dependent on transportation facilities, meaning the railroads, and price theoretically dependent on the law of supply and demand operating independently but often in these days artificially influenced by outside agencies such as labor conditions and government interference, the consumer has little chance of predicting the future course of supply and prices. The past is ample evidence of that.

Several other items perhaps of less importance are:—first, uniformity of quality. Unless purchased under analysis, there is no assurance of uniformity in heating value, ash content, moisture, sulphur, and clinkering qualities, all factors markedly influencing the value of the coal as a fuel. Second, the fire hazard involved in the storage on the premises of the necessary reserve supply. This may seriously affect insurance rates. Third, the growing agitation for "smokeless" towns, with the increasingly strict regulation being placed on the burning of solid fuels.

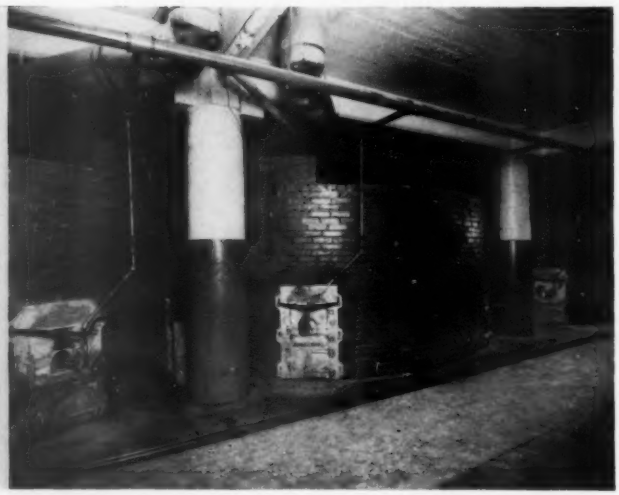
The illustration shows the charging side of a battery of 4 rotary bake ovens used for the baking of cake.

Having now given in a general fashion the inherent disadvantages of coal and coke for industrial heating purposes, let us take up specific cases and discuss in what manner these may be turned to our advantage. As must be obvious, the solid fuels are limited in their use to the somewhat cruder forms of fuel application. At one end of the scale is found the peel oven of the neighborhood baker, the stationary core oven of the foundry, the small vertical firetube high pressure steam boilers of many applications, an occasional galvanizing or varnish kettle, perhaps a lead melting pot or a few brass furnaces of the pit type. All of these are rather small consumers of fuel. At the other end of the scale are those industries that use enormous quantities of heat, with the cost of fuel representing one of the major items of expense This includes such heating operations as the generation of steam in large power plants, the manufacture of cement, the smelting of ores, and the many furnaces of the steel industry extending from the open hearth furnaces through billet furnaces, soaking pits, sheet and pair furnaces, and any number of others where coal is generally the fuel, although it is usually transformed first into producer or coke oven gas within the plant.

Starting at the lower end of the scale, let us consider first the baking industry. We will find that the small neighborhood shop makes up the very backbone of this business, and it is here that coal and coke cling the most stubbornly. The small shop has but a single portable or brick oven. The portable oven uses about 2 tons of coke a month costing about $18.00, while the brick oven will use twice that amount. In nine out of ten cases the proprietor is his own head baker, and generally most of the crew as well. He must tend his fire, adjust his drafts, remove the ashes in addition to his duties as baker. He is a busy man during working hours, and his leisure hours are few. The elimination of labor and the need for coming in early Sunday afternoon to fire up, increased cleanliness, better control of temperature meaning a better product, independence of atmospheric conditions, deliveries of fuel, freeing of coal storage space, all are potent arguments for gas. His monthly gas consumption should run about 40,000 cubic feet of 900 Btu gas, assuming a simple conversion burner installed in the present oven, and cost, let us say, about $24 for the portable or $48 for the brick. Twenty cents (or forty cents) a day is a small sum to pay for the advantages to be derived from the change. Make the cost of the gas burner as modest as possible, perhaps arrange for liberal terms, and you find the baker very receptive to your story.

Sometimes the large commercial bakeries still have part of their equipment on coke-firing. If so, run a survey and get their actual costs of operation. Check the labor carefully, watch the output for the per cent of spoilage, and find out their ash dis-

On the left is shown the meter installation, as booster and one of the 9″ tile burners used to convert the 18′ pottery kiln at the left from soft coal firing to gas. 10 burners are spaced around the kiln base firing through the former ash doors. The work of 23 tons of coal was performed by 405,000 cubic feet of 900 Btu gas.



On the right rear elevation of battery shown on previous page with the two 6″ tile burners per oven that converted these ovens from coke firing to gas. 1 Btu of gas replaced 1.71 Btu's of coke.

posal and redecorating costs. Then present a complete proposal for conversion to gas, including equipment cost and estimated gas consumption. If the gas figure is reasonably near the coke figure (one national chain said they would pay 20% more for gas), then the rest is easy.

The use of coke in the foundry for the firing of core ovens presents a wonderful opportunity for gas. Gas replaces coke with a tremendous increase in efficiency, a decided saving in time of bake, and a decrease in burned and green cores, plus a saving in labor, the ability to maintain any desired temperature, and a big improvement in working conditions. Coke requires a large combustion chamber that is obtained by excavating beneath the oven proper and building with firebrick and tile. The heating of this mass of material requires a large amount of heat that is eliminated when gas is substituted, since the gas burners are laid on the floor of the oven proper. In our own experience one Btu of gas has replaced anywhere from 1.61 up to 4.53 Btu's of coke. The latter was an exceptional case (see *American Gas Journal*, September, 1938); but on the average a 1:2 ratio is fairly safe to expect, or the replacing of one ton of coke by 14,500 cubic feet of 900 B.t.u. gas.

With the vertical firetube high pressure steam boiler, the automatic maintenance of the desired steam pressure without attention gives gas an overwhelming advantage, and usually forms our chief talking point. The ability to locate a gas boiler alongside the equipment where the steam is to be used, even if several floors above street level, affords a very definite saving in transmission losses and in labor. Btu replacement is generally about 1 to 1.33.

TABLE 1. EQUIVALENTS OF GAS AND THE SOLID FUELS.

				Gas Replacement	
Operation	*Type of Oven*	*Size of Oven*	*Gas Burner Equipment*	*Cubic Feet Per Ton*	*Btu*
Baking	2 peel type	12 x 12	2-#2 Webster	20,300	1.42
	1 peel oven	11 x 13	2-9″ SC tile	20,200	1.42
	2 peel oven	12 x 12	2-9″ SC tile	23,800*	1.31
	4 rotary	16′	2-6″ SC tile	16,800	1.71
	1 rotary	16′	2-9″ SC tile	14,000	2.07
	1 reel oven	16′	3-SC impact	19,800	1.45
	1 reel oven	10′	2-2L Webster	18,360	1.57
Core Baking	3 rack ovens	18′x8′x8′	Lava tip, HP	17,900	1.61
	1 drawer	35′x6′8″x6′7″	Multitube atm	16,350	1.77
	4 car type	18′x6′8″x7′	Multitube atm	16,400	1.76
	4 rack type	21′6″x6′x8′	Drilled pipe	12,100	2.38
	3 rack type	14′x7′x7′	Lava tip	10,850	2.66
	2 rack type	14′8″ x 6′ x 7′	Multitube	9,180	3.15
	1 drawer made into 7 racks	38′x6′11″x7′	Multitube	6,370	4.53
Glost kiln		15′9″ dia x 17′	10-9″ SC tile	23,800**	1.21
Oat Toasting kilns			Drilled pipe	10,100**	2.86
Varnish kettle			S.C. special	17,500	1.65
Pottery kiln		18′ diameter	10-9″ SC tile	17,600**	1.64

Note—
All Gas figures in cubic feet of 900 Btu mixed gas.
Coke firing in all cases but * hard coal.
** bituminous coal.
Coke figured as 13,000 Btu per pound.

Galvanizing kettles fired with coke have a higher rate of dross formation and a shorter life than gas fired kettles. This is more than adequate to turn the tide (see *American Gas Journal*, June 1938). In varnish cooking accurate control of temperature is an essential feature impossible to realize with coke. Quoting from a letter from a local varnish manufacturer after the change from coke to gas:—"after analysis of the results of our various tests, we conclude that the fuel cost for gas is practically the same as for coke. . . . In the long run, we feel the saving in time with gas will approximate 20%. . . . Gas fires, of course, give easier control and a clean stack room and saves the labor of building fires and hauling ashes. . . . Taking an average of 4 all day runs with 7 short runs, we find that we burn 17,500 cubic feet of gas (900 Btu) to do the same melting as a ton (2,000 lbs.) of coke." This figure represents a Btu replacement of 1 to 1.65.

The accompanying table gives a number of local installations where gas has replaced solid fuel firing and the relative efficiencies as shown by Btu replacement. In every case we find that 1 Btu as gas has gone much further than 1 Btu of coal or coke. In other words the efficiency without exception has greatly improved when gas was substituted for the solid fuel. The writer knows of no case where this has not held true. Surely this serves as an economic justification of the manufactured gas industry and the sale of industrial gas.

Fuel Flexibility

An Asset and a Liability

Part 2

CHARLES W. MERRIAM, Jr.

by

Charles W. Merriam, Jr.

Sales Promotion Manager, Glenwood Range Co., Taunton, Mass.

The first installment of this article, which appeared in the February issue, traced the principal advantages of city gas for residential cooking purposes to its natural flexibility. From this same attribute also comes its chief liability, i.e., lack of precision in burner adjustment. Limited field experience already seems to indicate that the cost of fixed orifices and an individual pressure regulator on each new city gas range is paid for directly in savings during installation and in subsequent reduced service calls. Other benefits include increased customer satisfaction from the first "turn on," fewer, "uncollectibles", more sales resulting from "user" and generally improved public relations. The fixed orifice-regulator method seeks to translate present liabilities into assets.

THE fixed orifice—individual pressure regulator method as applied to the modern city gas range may be removed from the academic stages of theoretical discussion only by widespread field experience under diverse operating conditions. The summation of the pertinent factors, as considered in Part 1 of this article, preponderantly favor this approach to the betterment of domestic cooking service. In fact, those few gas companies which already have had representative experiences with this method are now satisfied by the weight of accumulated evidence that the few detrimental factors are far overbalanced by the good. However, in this matter, as in any of a similar nature, only broad actual use will completely resolve the issue into known values. For the sake of future progress there is reason to hope that the next several years will witness a sufficient number of such carefully conducted field trials to determine conclusively the true worth of this definitely promising method of handling gas, the flexible fuel, for home cooking purposes.

As previously intimated there are two distinct main phases of this problem: First, the possible effects of using fixed orifices in conjunction with the individual appliance pressure regulators on ranges of present design and manufacture; second, the changes that might be brought about in future ranges if designers and subsequent manufacture could proceed under the positive assurance that Btu. inputs to the burners would vary in the home only between the limits imposed by present appliance regulators plus a reasonable margin of safety.

With respect to the first phase involving present ranges, initiative for such trials must come from the utility companies with the cooperation of the equipment manufacturers. The prime mover necessarily must be the fuel retailer who by the very nature of things has the most at stake in vigilantly protecting vested interests. In point of fact, virtually all the manufacturers can do is to specify and supply the various orifices best suited to the burner inlet pressure and to the particular gases on which such method is to be put into use. Nevertheless the sooner such experience has been gained the sooner will the possible net benefits be established.[1]

The principal considerations in this Part 2 involve a delineation of how and what basic improvements might be made in the design and performance of future ranges if such were equipped with fixed orifices and pressure regulators. Before conjecturing on the benefits that might accrue from such a Utopian design assumption, however, several good purposes would be served by examining the restrictions that are now an inherent part of design as a result of the fluctuating Btu. inputs that must be anticipated as an inescapable condition of service in the home.

What are the maximum and minimum inputs for any given burner rating that a manufacturer can with reason expect when designing a separate broiler, for instance, on manufactured gas? With a rating of 20,000 Btu. per hr. what is the probable greatest hourly quantity to which the burner will be subjected by a service adjuster, and what is the smallest? In practice the lower limit is in reality that required by the A.G.A. range specifications for Blue Star Seal approval. For test purposes in the Cleveland laboratory a range burner is set at rating with an assumed normal pressure of 3.5". Then without readjustment of the spud the pressure is mechanically reduced 50%, i.e. to 1.75", at which point a series of performance and other tests are carried out. This

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[1] *Once an individual range has been approved for the A.G.A. Blue Star Seal there is nothing in the requirement prohibiting the equipping of such range with any fixed orifice deemed either by the maker or the purchaser to be desirable. The affixing of regulator in no way involves forfeiture of the Seal on the range. Therefore immediate full use of this fixed orifice-regulator method in no way necessitates sacrifice of the protection offered by said Seal, provided the regulator itself has complied with the Listing Requirements for Domestic Gas Appliance Pressure Regulators, ASA.Z21.18-1934.*

Incidentally, field experience with various gases leads to the belief that complete reliance on theoretical formulae and curves plotted therefrom does not produce optimum results. The adoption of orifice size specifications for any given range is best preceded by a test employing actual measurement of the gas. This may be accounted for, although Btu. content, specific gravity and orifice pressure are known, by variations in viscosity and chemical composition not being accurately reflected in the formula constant under all conditions.

lowering of pressure lessens the gas input approximately 29%, or to 14.150 Btu. per hr., thus establishing in effect the minimum limit likely to be encountered in the field.

The upper limit for burner design is not enforced by A.G.A. specifications but rather by practical field conditions. For example, the procedure under A.G.A. requirements is to increase mechanically the 3.5" assumed normal pressure by 25%, or to 4.375", thus introducing an approximate 12% increase in gas input above burner rating. At this point performance tests, as mentioned above, are then conducted. Despite this laboratory requirement, designers of competent manufacturers, observing inputs frequently exceeding burner ratings by as much as 50%, customarily select a safer upper limit arbitrarily far in excess of that taken as the basis for A.G.A. tests.[2]

Thus the design of present gas ranges by force of circumstances embodies combustion facilities for a minus 29% and generally a plus variance of about 50% from approved burner ratings. That this total Btu. variance of nearly 80% involves inevitable sacrifices in performance attainable under more auspicious circumstances may be readily seen. Witnesseth the electric range as a contrasting example. This same design assumption likewise must extend, of course, to simmer burners, oven bypasses, pilots, etc., the consequences of which are far reaching. The flexibility of gas is responsible for both service problems of a serious character and also acts in some respect to prevent the production of ranges having the best possible efficiency and performance.

A mere listing of the possible results that might be achieved by range designers if fluctuations in burner inputs were confined to narrower limits is highly illuminating and seems to give substantial hope for future progress. The following outlines for each of the three cooking zones a few potential improvements possible under conditions of more constant gas inputs, the limits of which are predetermined by the fixed orifice and regulator method.

A. Oven

1. Anticipation of inputs exceeding burner ratings now necessitates provision for a substantial margin of safety in excess secondary air in the combustion zone, the reduction of which margin would allow redesign for:

a. Increased thermal efficiency by cutting down air inlet ports and/or discharge vents thus
1) Reducing "preheating" and "sustaining" gas consumption.
2) Lowering heat content of "products" discharged into atmosphere

b. Reduced volume and thermal content of flue products aiding better solution of venting problems by
1) Lower metal temperatures in surfaces adjacent to exit point.
2) Less volatile food products staining exit gratings or hood, also generally improved kitchen cleanliness.
3) Lower rear wall temperatures on "back-to-wall" ranges.
4) Allowing use of smaller chimneys in event of fluing ranges out of kitchen.

c. Raising burner closer to oven bottom for added low broiler depth without introducing greater danger of flame impingement.

2. Lessening of gas input fluctuations would permit designers the assumption of:

a. More uniform full flame thus
1) Attainment of specified preheating speeds.
2) Improvement of heat distribution in oven with better field baking results.
3) Lower metal temperatures in burner with less warping, crystallization of metal or alteration of gas ways.
4) Less erosion of oven bottom.
5) Reduced heat concentration in zone of automatic ignition mechanism with consequent longer life.

b. More constant gas to flash safety pilots and to automatic ignition pilots thus
1) Fewer pilot outages.
2) Reduction in pilot gas consumption.
3) Higher degree of safety.

c. Basis for developing a fixed orifice for the thermostatic by-pass resulting in
1) Maintenance of a lower minimum temperature without "creeping up" tendency.
2) More certain checking of thermostat at low settings.
3) Better "port-to-port" or so-called "run-around" ignition on by-pass.
4) Less tendency to flash backs.

B. Broiler

1. Lessening of variations in gas inputs to broiler burners would allow designers the assumption of a more uniform full flame, thus permitting:

a. More uniform distribution of heat over the broiling surfaces.
b. Attainment of preheating speeds and ultimate temperatures in accordance with design expectations.
c. Lower metal temperature in burner with less warping, crystallization of metal or alteration of gas ways.
d. Lessened heat in top of separate broiler compartments causing metal deterioration and heat transmission into top burner chamber.
e. Reduction in flue heats caused by overadjustments of separate burners thus benefiting
1) Surface temperature at exit.
2) Rear temperatures on "back-to-wall" ranges.
3) Kitchen temperature.
4) Freeing of the air required for overadjustments to the better combustion or incineration of volatile greases thus rendering more "smokeless."

2. More constant use input to ignition pilots extend similar benefits as stated for over above.

C. Top Burner

1. Lessening of variations of gas inputs to:

a. Simmer burner would allow
1) Elimination of excessive heat concentration ("Spot" heat) due to overadjustment of the full flame of the separate or "built-in" types (fewer ports) or of the low position of the "high-low" valve type.
2) Design to contemplate the positioning of burner head, flash tube and pilot without trouble from excess gas burning in flash tube due to overadjustment.
3) Design of ignition ports, etc. on the assumption that inputs will be up to rating.
4) Better relighting in event of extinguishment (particularly important on low flame settings) hence more freedom from the kitchen for the cook.
5) Cleanliness of utensils, both on exterior from impingement or soot deposits and on the interior from accelerated water evaporation and consequent food scorching.

b. Main burner ports would allow
1) Lessening of flame "spill-over" around edges of small and medium sized vessels due to overadjustments with improved thermal efficiency.
2) Reduction in carbon monoxide liberation due to impingement.
3) Diminishing odors at time of ignition caused by escape of unburned gas.
4) Reduction in enamel crazing on prongs of top grates.
5) Reduction in heat conducted to other parts of the range, especially joining top surfaces.
6) Fewer "flash backs" (of particular importance with non-ferrous heads).

2) Pilots would aid:
a. Reduced gas consumption.
b. More rapid and surer ignition.
c. Fewer pilot outages due to deposits on the under side of drip trays falling back on to pilot port and to other associated causes.

The magnitude of the improvements to future ranges within the realm of possibility that could be

[2] *The A.G.A. requirements referred to are set forth in Approval Requirements for Domestic Gas Ranges (ASA,Z21.1-1937) under Sections 2 and 3 of Part II, page 19, also under Sections 6 and 7 on pages 21 and 22 and in other related test procedure. Familiarity with these requirements and their implications is needed for a complete understanding of this problem in relation to manufacturers furnishing ranges with fixed orifices and a regulator as a standard part of such equipment.*

realized in new design by the fixed orifice-regulator method, is truly astonishing. The more probing the analysis of the situation the greater is enthusiasm for the future developments within the grasp of the gas industry via the means of this method.[3]

It is a fair question to ask why range manufacturers do not jump at what is on the surface a beckoning opportunity. If service expense can be reduced, if superior ranges can be produced, if gas can give a higher degree of home satisfaction, why does not the industry heartily embrace this rational, partially proved method?

The principal obstacle mitigating against the manufacturers of ranges taking advantage of the more constant burner inputs afforded by the method, is in the A.G.A. Blue Star approval requirements as now constituted. As now written these requirements require the conducting of tests under variable pressures as stipulated irrespective of whether or not such ranges are equipped with individual pressure regulators and fixed orifices. A range built to the smaller pressure fluctuations introduced by the pressure regulator would not meet the requirements of present A.G.A. test methods under wider pressure limits. Thus by indirection a manufacturer is prohibited from gaining the full advantages inherent in this method for ranges bearing the Blue Star Seal. Needless to say no manufacturer for the sake of securing such advantages by means of a method whose merits at the present stage of development are at least debatable, will in his right mind suffer loss of the Seal. The problem is how to overcome the *impasse*.

The move suggested by those most conversant with the problem is that a new clause be inserted in the Blue Star requirements stating that if a range is submitted to the Cleveland laboratory with fixed orifice and regulator the various maximum and minimum pressures under which tests are now conducted will be made those representing the pressure regulating limits of the regulator itself. In the drawing up of such an optional clause due consideration should be given to the pressure drop through, and the capacity of the regulator at full appliance load, proper labelling and other safeguards essential to such arrangements. Careful study could bring about an optional clause whose safety aspects would be at least equal to those of the present requirements. It is needless perhaps to state that the clause as proposed is optional, the present requirements remaining in full force and effect for the testing of those ranges not so equipped. The importance of such an optional clause is that redesigned ranges of standard production could then be made available for distribution to the public having the combined advantages of the method recited in Parts I and II of this article and also of the Seal itself.

In summary then the conclusions arrived at are twofold. First after the manner of the bottle gas industry and some city gas companies, the industry is urged to engage immediately in the practice of installing modern city gas ranges equipped with fixed orifices and an individual regulator in such numbers that determination of the efficacy of such a method might be made for the benefit of their customers and themselves. This course contemplates the use of ranges conforming to present A.G.A. Blue Star requirements. Second, after due deliberation, the approval requirements committee of the Association is urged to adopt a suitable optional clause permitting the testing of ranges under pressure conditions governed by the limitations of the regulator. This latter course would allow manufacturers the opportunity of redesigning new equipment and thereby make available at some future date the added advantages derivable from the fixed orifices-pressure regulator method. By thus espousing the cause of progress can the industry convert the liability of its fuel's flexibility into more uncompromised asset.

[3] *The solving of many tenacious industry problems would be made easier by the adoption of this method. Numbered among these problems are: ignition troubles on natural and mixed gas whose bearing on the CP program is important; unsightliness of top grates and public insistence has been an obstacle to dispensing with the coverall, the retention of which is a source of cost and an encumberance to the intelligent treatment of backrails; installation of ranges by dealers with their "no savee" truckmen converted to servicemen; development of enclosed top ranges and vertical broilers; kitchen coolness; utensil cleanliness, and a host of other perplexities.*

University of Illinois, Urbana, Ill. Broadcasts Semester's Discussion on Air-Conditioning Problems

What is probably the first broadcast of a whole semester's discussion of air-conditioning problems, goes on the air over WILL, the University of Illinois 5000 watt station.

The series will be known as Home Heating and Cooling. The discussions will be offered every Tuesday afternoon throughout the remainder of the school year and will be given by members of the teaching and research staff of the Department of Mechanical Engineering. The material presented will be leveled at the home occupant.

Also, a non-technical round-up of latest information about year around comfort air conditioning for homes and other small installations will be presented in a two-day conference at the University of Illinois March 8th and 9th.

This will be the second such Conference on Air Conditioning to be held at the University, whose College of Engineering has pioneered the study of home heating and for some years now has been studying the companion work of home cooling.

The conference will be under the sponsorship of the department of Mechanical Engineering and the Engineering Experiment station of the University of Illinois. Prof. W. H. Severns is chairman of the general committee.

The purpose of the conference is to present, in as non-technical a manner as is possible, information on current problems and apparatus involved in small and medium size all-year comfort air conditioning installations. The meeting is planned primarily for "the small dealer, installer, owner, and prospective owner of air conditioning equipment."

WILL has a potential audience of most of the State of Illinois, including Chicago and Cook County, and large parts of Indiana, Kentucky, Iowa and Wisconsin.

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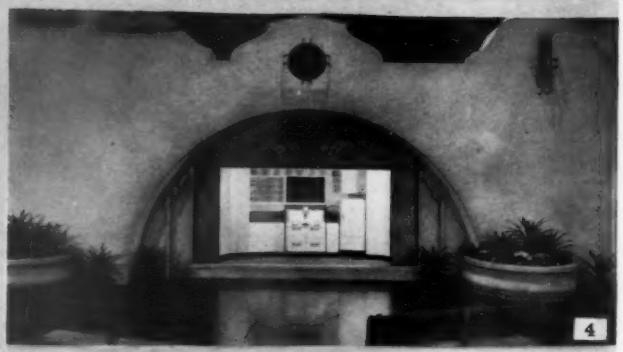
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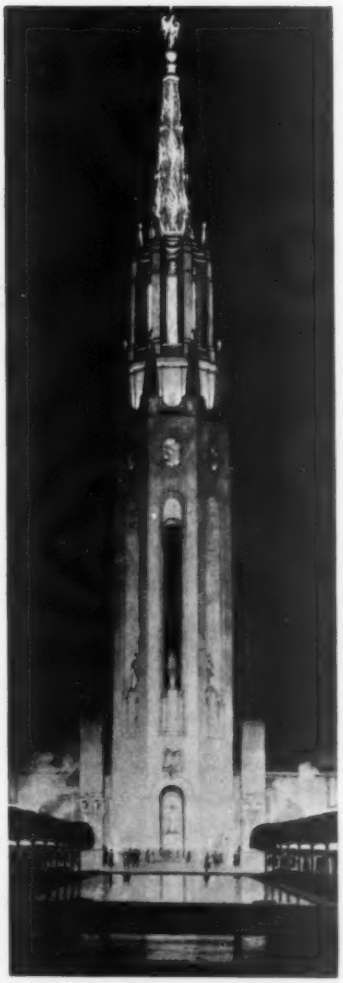
Gas Exhibits at Golden Gate International Exposition, San Francisco



Exposition Central Theme—
TOWER OF THE SUN

GAS EXHIBIT FEATURES

Massive and Decorative Arches feature the entrances to the gas exhibits where many artistic murals are employed in the decorative schemes. Abundant floor space indicates the ease and comfort with which large crowds are being handled. Ample space is provided around the individual exhibits.

(1) Detail of South Entrance, Gas Industry Exhibit.
(2) General View of Gas Industry Exhibit Looking South.
(3) General View of Gas Industry Looking North.
(4) Stage—Gas Industry Exhibit.
(5) One of Three Water Heater Displays.
(6) Exhibit of Pacific Gas Radiator Co.
(7) Payne Furnace and Supply Co. Installation.
(8) Porta-Built Kitchen, Gas Industry Exhibit.
(9) Exhibit of Whitehead Kitchens.
(10) Ward Heater Company Installation.
(11) Atlas Heating and Ventilating Company and Fraser Furnace Company—Floor Furnaces.

Gas for New Homes

by
Herbert G. Schaul
Westchester Lighting Company
Mt. Vernon, N. Y.

I HAVE no magic wand, or secret success formula to give you for the success of new homes. Mr. Lyle Harvey, in talking before our Metropolitan Gas Heating and Air Conditioning Convention on "New Developments in Sales Methods" emphatically stated there were no new selling developments under the sun not tried out before. The oldest and best one to use, in his estimation, is "Good Horse Sense and Hard Work".

I can only give you a program which our company has successfully used over 3½ years. No doubt, many of you are using similar methods in your own company, but at least, you may be able to secure one thought which you would like to try in your own properties.

In order to understand the successful operation of our new house sales, it will be necessary to dwell but a moment on the physical set-up of our company. The following thumbnail sketch will bring out some of these details. The Westchester Lighting Company is a subsidiary of the Consolidated Edison Company of New York, and is a combination gas and electric company of 137,000 gas meters and 165,000 electric meters. Our county covers 450 square miles and has a population of approximately five hundred thousand people. There are 4600 active gas house heating installations on our lines. We supply manufactured gas of 540 Btu per cubic foot and have a 75 cent per thousand cubic foot water heating rate and a 50 cent per thousand cubic foot house heating rate (single heater for all uses).

In order to see the growth of new house sales, the following table shows the rapid growth within the last few years:

NEW HOUSE SALES

Year	*Number of Sales*
Starting September 1935	9
1936	161
1937	385
1938	468
TOTAL	1023
1939 quota	600

We are reaping the profits now of the many contacts made in the beginning. Sales Managers and operating executives must be patient for the results of new house sales, especially if competition is keen. Rome was not built in a day!

The Architects' and Builders' section is made up of a manager who acts as a salesman as well, together with two district salesmen and one departmental assistant. The new house sales made in our territory have been made against stiff oil competition. There are literally 20 oil salesmen to our one gas salesman. It is interesting to note that the oil saturation in Westchester County amounts to 36 per cent of one, two and three family houses. Oil sells from 6½ to 7 cents per gallon, and hard coal at twelve dollars per ton. We originally had a ratio of eight oil burners to one gas unit. The ratio now has changed to approximately three oil burners to one of gas. I hang my head in shame when reviewing the change in figures of Minneapolis, Minnesota, in which the original ratio was four oil burners to one of gas which, since the introduction of mixed gas, has changed to two gas units to one of oil. They certainly deserve a lot of credit for a fine selling job.

What Recommended Program Is Offered for Your Help on the Sale of House Heating in New Homes?

1. I believe that if you can secure 50 new houses a year in your territory, it is sufficient reason to warrant a special man covering the work. This man may be secured from your own selling ranks at the present time, without any additional expense on your part. It has been found impossible to have the regular house heating salesman cover the new house work efficiently at the rate of present construction methods throughout the country.

2. Architects, Builders and Realtors should be contacted periodically by the special representatives. It is physically impossible to secure adequate coverage with the present selling force.

3. The most missionary work should be spent on the architects. They, in my opinion, are the most influential in the sale of gas house heating equipment. They can either "make" or "break" a sale. The architect in the main, is retained for good judgment, ability to make a pleasant looking house, and act as a consultant in the building of same. He, like everybody else, sticks to tried products. If he has built several houses and used oil therein, he naturally knows the operating results and will stick to oil in any future specifications. These men are ethical, like doctors, and they don't like people, especially gas men, jumping over their heads and running to the owners direct. It may be necessary for you to lose some sales to these architects in order to gain their confidence in your product. I repeat, by no means, go over the head of the architect to the owner in order to present the gas story. Give the true facts, and sell your job clean. You will have ample opportunity to offer other services, such as kitchen planning, and lighting, in order to get in the good graces of the architects. These points are elemental, but are important facts to be considered if a successful campaign on new homes is planned. In

Presented at Mid-West Regional Gas Sales Conference, American Gas Association, Chicago, Illinois, February 9-10-11, 1939.

many cases, some of these points are too often neglected. We have found another very effective entry to the architects and builders, and that is in presenting them with an Architects and Builders File, and affording them sufficient information for him to properly quote on the equipment.

4. Advertising cooperation for large developers. In order to secure proper coverage in the building field, large reliable developers should be encouraged. The gas companies can cooperate with these builders in giving them advertising space in the daily papers. It gains the confidence of the developer, that some one else beside himself, is willing to shoulder some of the selling expense. The advertising expense, is and should be, a small item in your advertising budget. It creates the interest of other builders to take on the gas load in order to gain your advertising cooperation.

We have recently tried a monthly DIRECTORY OF RESIDENTIAL BUILDING DEVELOPMENT. The DIRECTORY is offered to consumers contemplating the purchase of a newly constructed house in the Consolidated Edison Company territory, utilizing gas heat. It shows a picture of the house, listing the price range, number of rooms, architect's and builder's names, and town location. Already there are indications that it is an incentive to other builders to have their houses listed in the publication. In this way they gain additional free advertising and touch a new market of prospective buyers. The plan has proved very effective.

5. Model Houses. In some localities, Model Houses have been overdone, but certainly, the worthwhile projects should be encouraged to use gas for all four uses if possible. It may even mean a small contribution on your part to encourage this cooperation, but again the expense is infinitesimal for the value secured.

6. Lawn Signs. Lawn signs afford any gas company wherein gas is used for house heating, at least three months of excellent advertising at low cost. This is an old idea but has plenty of merit, and has been used effectively throughout the country.

7. Architectural County Society. I spoke of cooperating with the architects, and in our own locality, the Manager of our Architects and Builders Division is an honorary member of the county architectural society. In fact, the society uses our company auditorium for their regular monthly meetings. We assist them, too, in advertising in their regular monthly magazine.

8. Real Estate Operators. Here is one group of men who can be of assistance in the reconditioning of old property and rentals of same. If you can convince this group that you have a worthwhile project in gas house heating, then you will have gone a long way in helping your cause.

The companies throughout the country utilizing the above general procedure in securing the gas for new homes have been most successful. Sales range between 20-40% of the total house heating sales in 1938. The following figures, of but a few companies having a successful new home campaign, are proof of this statement.

Number of New Home Installations

Detroit, Michigan	2960
Washington, D. C.	2550
Lubbock, Texas	1190
Pittsburgh (2 companies)	956
Cleveland, Ohio	897
Atlanta, Georgia	733
Minneapolis, Minn.	500
Westchester Lighting Co., Mt. Vernon, N. Y.	468
Brooklyn Union Gas Co.	425
Chicago, Ill.	336
Long Island Lighting Co.	300

The Value of New House Sales in Protecting Basic Load of Cooking, Water Heating, and Refrigeration

Your chairman has asked me to particularly tell you what happened in other homes utilizing gas for only part service. Let me give you a few figures which prove what happens to the basic load when gas house heating has not been secured in new homes.

Where *GAS* was used for House heating:

100 % Gas for Water Heating.
99+% Gas for Cooking.
50 % Gas for Refrigeration.

Where *OIL* was used for House Heating:

99+% Gas for Cooking.
1 % Electricity for Cooking.

Where *OIL* was used for House Heating:

80% Electricity for Refrigeration.
20% Gas for Refrigeration

Where *OIL* was use for House Heating:

90% Oil for Water Heating.
10% Gas for Water Heating. (warm air jobs only)

The above figures represent what happened in our own territory. A further check is made by figures supplied by the Washington Gas Light Company in a talk by James E. West before the METROPOLITAN GAS HOUSE HEATING AND AIR CONDITIONING COUNCIL recently as follows:

	No. of Appliances Installed	% of Total Available
Ranges	4289	87.6%
Water Heaters	3673	75.1%
Refrigeration	1670	34.2%*
House Heating	2561	52.5%

* Refrigeration 55.2% including Apartment Houses.

The moral of all these figures points to but one thing: GAS HOUSE HEATING IN NEW HOMES DEFINITELY SAVES THE COOKING, WATER HEATING AND REFRIGERATION LOAD.

Résumé of Progress Made Throughout Country in House Heating

I would recommend, for your reading, a most inspirational work done by Mr. Paul Ryan of the A. G. A., and entitled Statistical Bulletin on "Comparative Data on Gas Fired Central Heating Installation 1937-38." These central figures should act as an inspiration to you. There are 2,225,000 homes in the United States heated with gas. These figures are made up of:

Central House Heating Installations	825,000
Unit Heaters and Space Heaters	1,400,000
	2,225,000

It is interesting to note that the figure of 825,000 homes (Central House Heating) represents a gain of 18.9%. It also means that 1 home out of ten (in cities) is heated with gas. The installations in manufactured and mixed gas show a pronounced gain for the year of 19.2%. How many businesses do you know that show such a gain? Of the 160 manufactured and mixed gas companies reporting sales for 12 months ending July 1st, 1938, 32,632,981,000 cubic feet have been sold for house heating.

By way of comparison, let us see what our competitor, the oil burner dealers have shown during 1938. The following figures taken from the January 1939 issue of the "Fuel Oil Journal," give a complete picture of that situation.

Residential Oil Burners Sold 1938

Conversion Burners:			
1937	193,057		
1938	135,646	29.7%	Decrease
Boiler Burner Units:			
1937	14,431		
1938	10,943	24%	Decrease
Warm Air Units: (Winter Air Conditioning)			
1937	11,386		
1938	8,686	23.7%	Decrease

(*Continued on page 58*)

13th Annual Business Conference The New England Gas Association

THE New England Gas Association held its Thirteenth Annual Business Conference at the Hotel Statler in Boston on February 16th and 17th. A registration of 501 exceeded that of any year since 1930, and is an indication of the widespread interest taken in the programs of this Association, not only by its members but also by those outside of the area which it covers.

In this issue of the Journal we publish in full certain papers which seem to be particularly timely and of especial interest to the gas industry as a whole. However, we were impressed with the high calibre of *every* paper presented. Each had a direct application to the specific problems of the New England gas companies and many contained data and information which could be taken home and applied directly.

In discussing the Sales Training Program, which the New England Association handled with such outstanding success, Prof. Ralph G. Wells of Boston University called attention to the types of information needed by junior, senior and advanced employees.

"For the first group, you need a program of basic training which will drill these new employees thoroughly in the information which it is necessary for them to acquire and in such standard techniques as are essential to secure uniformity in their development and insure their keeping in step with company policies and practices.

"The second phase of your program for employees who have graduated out of the beginners' class should refine and reinforce the knowledge which they have already acquired. But the chief end of this educational work should be to develop maturity and accuracy of judgment, to strengthen and refine their skill in handling the day-to-day problems of their job, and to promote such growth and mental development in the individual as will make him capable for more effective work.

"The third stage of your educational activities will be designed for more advanced employees of proved ability who have potentialities which are worth developing. These men, as a rule, possess nearly all of the information required. The problem is to keep them mentally alert and their skills continuously sharpened through discussions of newer developments in their own and allied fields. Discussion programmes for this type should take up and discuss current problems encountered in their work and the exploration of new ideas and suggestions which have been advanced for increasing the company's effectiveness."

The Conference papers were balanced to reach all three of these groups, and the general work of the Association in developing the younger men of the industry is outstanding.

Officers and Directors New England Gas Association

Back Row (l. to r.): G. W. Stiles, Portland Gas Light Company; H. B. Noyes, Manchester Gas Company; E. M. Farnsworth, Boston Consolidated Gas Company; H. R. Sterrett, New Haven Gas Light Company; N. B. Bertolette, The Hartford Gas Company; W. C. Bell, New England Power Association, F. L. Ball, New England Power Association. Middle Row (l. to r.): Clark Belden, Executive Secretary; F. D. Cadwallader, Boston Consolidated Gas Company; R. L. Fletcher, Providence Gas Company; C. C. Ogren, Eastern Appliance Company; J. L. Johnson, Providence Gas Company; D. H. Levan, Lowell Gas Light Company; F. M. Goodwin, Boston Consolidated Gas Company: G. D. Yeaton, Detroit Michigan Stove Company, Boston. Front Row (l.to r.): Miss A. C. Kenney, Assistant Secretary; R. J. Rutherford, Worcester Gas Light Company; George S. Hawley, The Bridgeport Gas Light Company; J. A. Weiser, The Newport Gas Light Company; C. G. Young, Springfield Gas Light Company.

R. J. RUTHERFORD

President New England Gas Assn.
Vice President
Worcester Gas Light Company,
Worcester, Mass.

The Industry Briefly Reviewed

by
Conrad N. Lauer
President, American Gas Association

CONRAD N. LAUER

THE past few years have witnessed an increasing appreciation on the part of American industry of its responsibilities to employees and to society at large concerning the stabilization of employment.

That the gas industry has not only been conscious of this responsibility, but has been in the very forefront of leadership in this regard, is evident by a study of figures.

It is generally agreed that the year 1932 marked the bottom of the decline of general economic activity in this country during the last depression. As indicated on the charts distributed at this meeting, by taking the year 1929 as 100 you will find that for all manufacturing industries as reported to the United States Bureau of Labor Statistics, employment in 1932 had fallen to 63% of the 1929 figure, while for the gas industry, employment in 1932 was still more than 82% of the 1929 level.

That is to say for all manufacturing industries employment declined 57% from 1929 to 1932 but for the gas industry employment declined only 18%.

An examination of the payroll figures is of even greater interest. During this same interval the payroll of all manufacturing industries reporting to the Bureau of Labor Statistics declined 58%. Payrolls of the gas industry, however declined by only 21%.

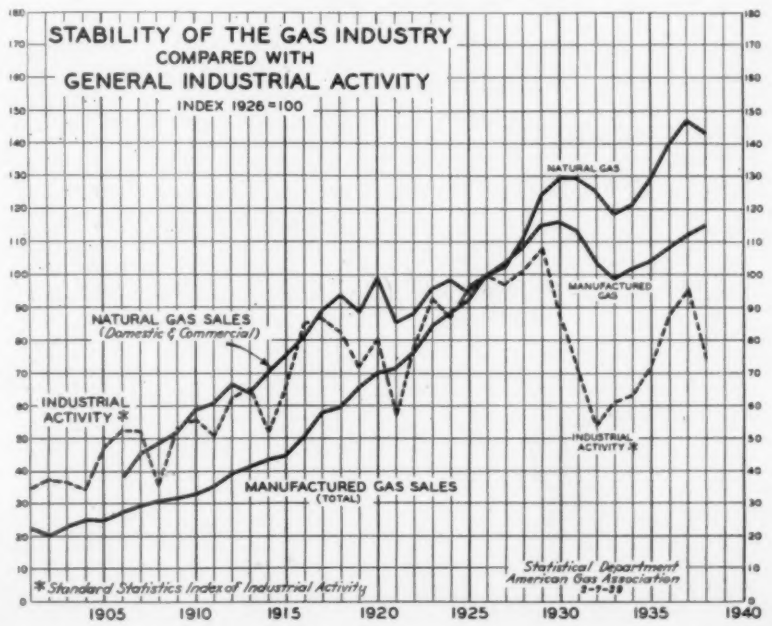
Since 1932, payrolls of all manufacturing industries have recovered to the point where, in the year 1937, they were only 10% below the 1929 level. For the gas industry, however, in 1937 payrolls for 136,000 employees amounted to more than 222 million dollars, a figure actually above the 1929 level.

These figures serve to demonstrate not only the stability of the industry but also its magnitude. The average person is usually surprised to learn that the investment in the Gas Industry exceeds by many millions the amount of capital employed in the production of steel, which has long been considered one of the most basic of the great industries of the United States. While some four billion, 300 million dollars have been invested in the steel plants of this country, almost five billion dollars of capital is required to provide Gas service to the more than 17 million customers of this great industry.

Today towns and cities with a population of more than 81 million people have available the innumerable conveniences afforded by this most modern fuel, Gas.

An interesting side-light on the contribution of the gas industry toward improved living conditions for the workers engaged in supplying this essential service is indicated by the fact that, whereas in the big year 1929 the average employee in the gas industry worked 48 hours per week, by 1937 this had been reduced to 40 hours per week, and yet his average weekly earnings for the 40-hour week were slightly higher than in 1929.

An important factor in this accomplishment and in the maintenance of high standard of service to which gas customers have become accustomed, is the tremendous amount of capital that stands back of each worker in the gas industry. For example, in the automobile industry, approximately $3000 has been invested in plant and machinery for each worker employed. In the case of steel, this figure is about $7,000,



Presented at the Thirteenth Annual Business Conference of The New England Gas Association, Boston, Mass., February 16, 1939.

while the railroads have an investment of approximately $24,000 for each employee. Yet the average worker in the gas industry has behind him the tremendous investment of $37,000.

Wages and salaries in the gas industry are high, amounting to an average of $1,638 a year, as compared with $1,560, for the automobile industry and $1,500 for the petroleum industry. And yet for each dollar disbursed by the gas industry in the form of wages and salaries, an additional forty cents is turned over to the various state, federal and local authorities in the form of taxes.

Preliminary estimates indicate that revenues of the entire industry, both manufactured and natural, aggregated $786,576,000 in 1938, a decrease of 1.8% from the preceding year. The manufactured gas companies grossed $367,714,000, a gain of 2.2% for the year, while revenues of the natural gas companies were $418,862,000 as compared with $441,232,000 in 1937, decrease of 5.1%.

One of the most encouraging aspects of the data on the industry for 1938 is that for the first time in eight years the sales of manufactured gas for domestic uses, exclusive of house heating, registered a definite upturn. Sales of gas for cooking, refrigeration, water heating, etc., amounted to 198 billion cubic feet for 1938, an increase of 1.5% for the year, indicating that the aggressive sales promotional and national advertising activities of the past few years are beginning to bring forth fruit.

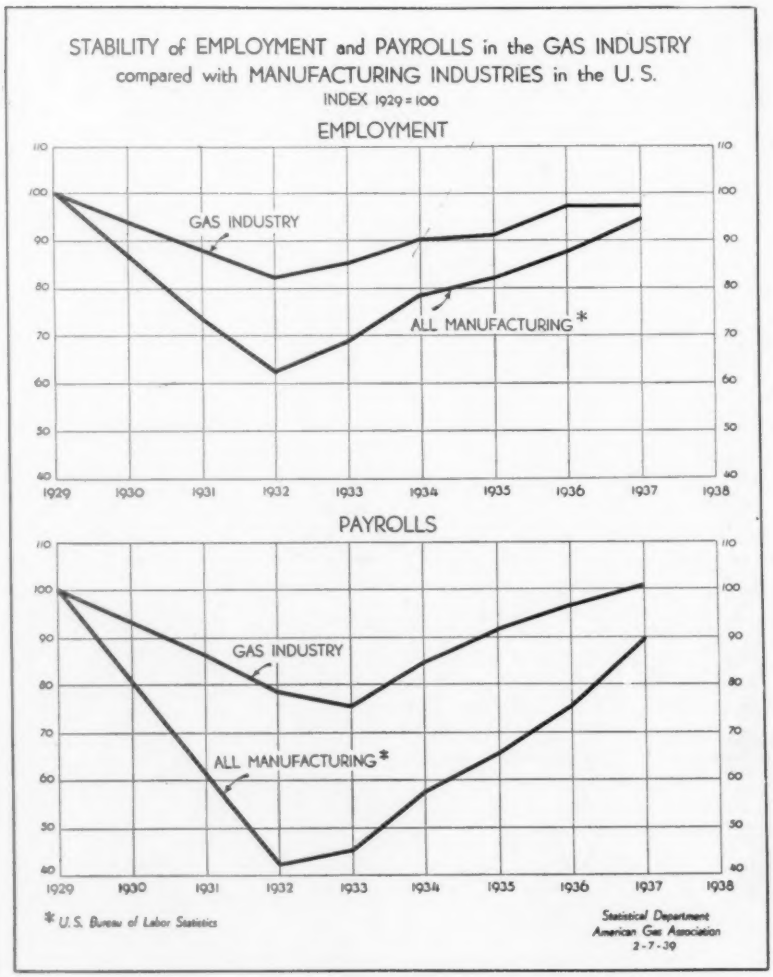
The gain in house heating sales of manufactured gas amounted to 10% and would have been even greater except for the mild temperatures prevailing in most sections of the country during the year.

During 1938 the industry inaugurated a program for the design, production and sales promotion of a new type domestic gas range with Certified Performance Requirements and adopted a special trade mark for ranges complying with these quality specifications.

More than sixteen range manufacturers are now producing ranges of this type and the number is growing rapidly.

More than one million gas ranges were sold during 1938 and the industry anticipates increased sales during 1939, with greater emphasis upon these quality cooking appliances.

Gas refrigeration continued to advance its achievements of previous years by again making a better relative sales showing than other types of automatic domestic refrigerators during 1938.



More than 744,000 gas water heaters were sold during 1938, and even better results are anticipated from the program of sales promotional efforts to be continued during 1939.

It is estimated that the total number of gas central house heating installations connected to the lines of all United States Gas companies in 1938 amounted to 825,000. In addition there were approximately 1,400,000 dwellings heated by unit heaters, space heaters, floor furnaces, etc., giving a total of more than 2,225,000 homes in the United States that are heated by gas.

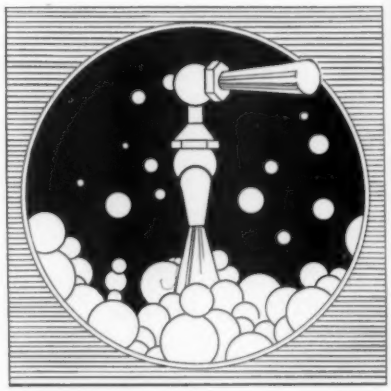
The success of recent national cooperative sales campaigns, sponsored jointly by the gas utilities and the gas appliance manufacturers, has led to more aggressive campaign plans on the four principal domestic uses of gas—cooking, refrigeration, water heating and home heating during 1939. Closer coordination is being accomplished between these new campaigns and the industry's National Advertising Program, as well as the national sales programs of the individual gas appliance manufacturers.

The growth of acceptance of these national movements by gas companies insures their more effective use locally. Under the influence of all these factors, it is anticipated that the average annual consumption of gas per residential customer will assume substantially higher levels during the next few years, without considering the marked increases in the sale of gas for home heating.

The gas industry has, I believe, reason to look forward to the future with confidence, secure in the knowledge that through a continuation of its aggressive merchandising, sales promotional and advertising activities it will maintain and enhance its position as an indispensable factor in American economic life.

And this goal is attainable because the qualities of character, steadfastness and resourcefulness inherited from the pioneers, and maintained in New England to such an obvious degree, as demonstrated last Fall, are assurances of success.

A New Approach to Gas Water Heating Sales



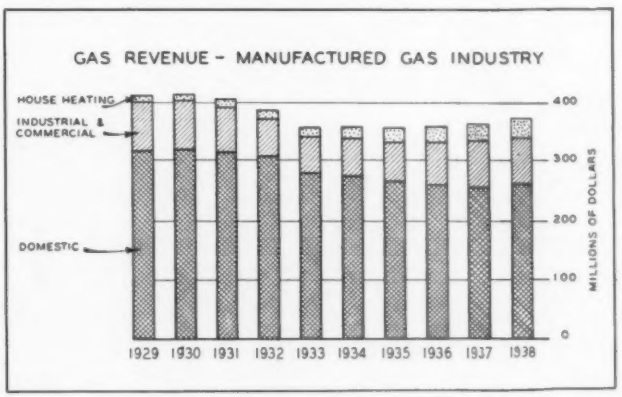
by
Roy E. Wright
Assistant to Vice President,
New England Gas & Electric Association

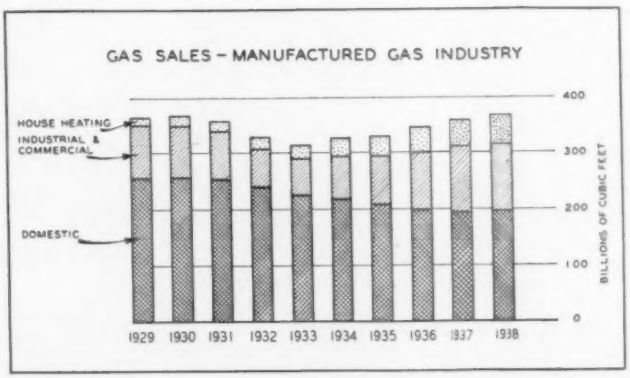
BEFORE a physician can properly prescribe a cure for his patient, he must first determine the cause of the patient's ills. Likewise, a gas company sick financially can not be cured until the management has found the cause of its sickness. Personal opinion is of little worth. What is needed are facts.

Over a period of the last eight years, many gas companies have shown a steady decline in domestic net revenues to the point where—

(a) Stockholders begin to question the operating ability of the management;
(b) Some bankers and brokers refuse to recommend the sale of gas securities to their clients.

Drastic steps need to be taken to stop the decline in revenues of these gas companies, or they face oblivion. The following is a chart showing these revenue trends in recent years in manufactured gas companies.





Presented at the Thirteenth Annual Business Conference of The New England Gas Association, Boston, Mass., February 17, 1939.

What has this to do with water heating sales? Eight or ten years ago the water heater was looked upon by the gas company as one of the best load builders available. Thousands of dollars were spent by the gas company to promote the sale of water heaters. Many thousands were installed on the gas lines. They provided excellent revenue for the gas companies.

Today, many gas executives look with apathy towards the promotion and sale of the water heater. Why?

1. It is still a good gas consumer;
2. It will give a quality of service to the customer superior to that of any other fuel.
   (a) A number of improvements have been made in the construction and mechanism of these heaters which provides a better performance in efficiency with less cost to the customer than the old water heater—But—the water heating load is no longer a stable load.

Ten years ago, if rates were designed to meet competitive fuel prices, the gas industry could have gone out and captured a large part of the space heating market without giving up any revenue. At that time, however, many gas executives looked with scepticism at the house heating business. They were fearful of additional plant and main investment. They were worried about the effects of low house heating rates on their other customers. The attitude generally was, "Why pile up unnecessary grief by trying to break into a new field."

Since that time many gas companies have done a fairly good job of selling gas house heating with the rates with which they have to work, but at a tremendous sales cost. In addition, the cost of retaining the house heating load has been almost as great.

In the meantime, the oil industry has gone out and captured a large part of the house heating market. The table on page 26 will indicate the fine sales job they have done:

Unfortunately, they not only captured the heating market, but also the water heating market where a central heating oil job was sold. Where the gas company sold a water heater and later the oil man sold a central heating job, the gas company lost the water heating load. For this reason, today, the water heating load is no longer a stable one.

The following table will point out the relation of central-fired oil jobs to the water heating load.

90% Oil Burners Have Water Heating Attachments

Company	*Number of Domestic Meters*	*% with Oil Burners*	*% with indirect Water Heaters*
A	30,559	10.1	8.7
B	31,715	8.3	5.6
C	39,007	21.1	20.6

27% SATURATION OF OIL BURNERS

State	Number of Urban Dwellings	% Central Heating	% Central Heating Using Oil	Coal	Gas	Wood
Maine	63,647	73.2	29.6	63.7	.8	1.9
New Hampshire	56,075	55.2	57.0	34.0	1.5	7.5
Vermont	24,784	64.5	50.9	45.9	.1	3.1
Massachusetts	638,032	62.4	36.4	59.8	.5	3.3
Rhode Island	108,001	59.4	48.6	48.9	.5	2.0
Connecticut	184,550	56.8	70.1	27.4	.5	2.0

What effect has this selling trend had on new home developments? It is an admitted fact that the oil industry has obtained a very high percentage of the space heating market. With the acquisition of this space heating market, it usually acquired also the water heating load, and the customer is led to believe at no additional operating expense to him. Two important facts follow this trend: (1) As new home building goes, so goes the old: (2) Our better type of customers move into the new homes and we are left the poorer and unprofitable type of customers. A. G. A. Statistics show that:

1. Approximately four oil heating jobs are sold to one gas job.
2. Each of these oil jobs prevent the sale of a gas water heater for a long time to come.
3. A gas water heater consumes about 36 MCF per year.
4. Thus, every 4 oil heating jobs sold represent a potential of 144,000 CF of gas per year.
5. At 85c per MCF this represents $122.40 of revenue.
6. A gas heating job averages 300 MCF per year.
7. At 50c per MCF this represents $150.00 per year of revenue.
8. But the gas heating jobs represent a new business expense as high as $100.00 per job.
   This situation offers a clear challenge.

There are over 100,000 coal and combination types of ranges in use in New England in 1938. So what! In recent years the oil man has sold a range oil burner to a large percentage of these homes. The range oil burner not only heated the kitchen, but served to cook and heat water as well. In many of these homes where we had a partial cooking load or the small water heating load, it was lost to our competitor. Below is a table which will indicate the relation of the kitchen heating to water heating.

65% of Oil Kitchen Heaters Heat Water

Company	*Number of Domestic Meters*	*% Kitchens Heated with oil*	*% of Range Water Heaters*
A	30,559	28.1	* 3.5
B	31,715	58.3	** 53.4
C	39,007	50.0	*** 31.7

* 16,139 or 52.8% not piped for hot water
** 2,487 or 7.8% no means of heating water
*** 5,514 or 14.1% no means of heating water

Thus, it can be seen that the recovery of water heating business, the stabilization of the water heating load now on our lines, and the future of the gas water heating business lies largely in the solution of the kitchen heating and house heating problems. I have no desire to discuss rates. Each company must analyze its own situation and determine what action should follow. I would like to call to your attention, however, that there is a type of kitchen heating rate that will obtain the business with practically no loss to the company.

Unfortunately, the house heating rate problem is not so simple. Rates must be comparable with other fuels to be effective. With many companies, this kind of house heating rate would involve an immediate large revenue loss. Analysis should be made, however, to determine what this loss would be. How much revenue could be added with this kind of rate, the tools needed to obtain the business, and how much money would be needed to do the job?

May I emphasize at this point that rates alone will not do the job. The following table will show that some cities with higher heating rates did a better job than others with lower rates.

Rates Do Not Make Sales

Average Heating Rate	*% 1 & 2 Family Houses Sold*
40c	.25
48c	3.25
50c	1.25
50c	.7
52c	.4
61c	.6

An analysis of individual salesmen's results in your properties or other companies in the manufactured gas area will show that an average salesman will sell a certain number of units in a normal year. It will also point out that the sales volume or total units volume per company is almost in direct proportion to the number of salesmen. Our management sometime ago decided to test these findings. The table below will show the results of this test on a house heating program in a city in New York State with a population of about 25,000 people.

New York State Company

	No. of Salesmen/ Years	*No. of Meters*	*Sales*	*Reverts*	*Net Gain*
1935*	1	5500	12	2	10
1936*	3	5500	179	10	169
1937*	2	2500**	103	5	98

* 12 mos. ending May.
** 3000 meters withdrawn as distribution System not adequate.

The next table will show the results before and after a sales program in a city in Pensylvania of about 15,000 gas meters.

Pennsylvania Company 15000 Meters

	No. of Salesmen/ years	*New Sales*	*Reverts*	*Net Gain*
1937*	½	1	2	-1
1938*	5½	150	16	134

* 12 mos. ended July.

The next table will show the results of an expansion house heating program with the innovation of a new lower house heating rate in a city with approximately 30,000 meters in Massachusetts.

New England Company 30,000 Meters

	No. of Salesmen	*New Sales*	*Reverts*	*Net Gain*
1937—12 mos.	1	24	15	9
1938— 5 mos.*	9*	168*	4	164

* Expansion program started August 1.

Therefore, if you want to sell 1,000 units in 1939, you must divide this figure by the average number of units per man per year to determine the number of salesmen to do the job. It is imperative that you have the proper man power, if you desire to accomplish a certain job. It is necessary, of course, that the man power be properly supervised and that the dead wood be continually weeded out, and replaced with aggressive salesmen.

A proper study of a program of this type will indicate that the additional sales cost will not be nearly so great as you might expect if you have the proper appliance markup with a resultant reasonable gross merchandise profit. Every gas company has a definite overhead in its sales department. This overhead cost will not increase with additional salesmen. The merchandise profit that these new men will bring in will do much to keep down the net additional expense required for such a program.

One of the factors in a program of this type is an inefficient installation cost. Installation expenses should be studied and brought down to a reasonable figure. Then this cost should be passed on to the customer.

Lest our analysis of the water heating problem be misunderstood, it is not the intent to imply that there is no water heating business available unless you revise your kitchen heating and househeating rates. There is still a large water heating potential business awaiting you. Manpower will obtain it for you.

It does seem, however, that an overall far-sighted water heating sales plan would include these problems because: (1) It opens up a much greater potential market; (2) It provides an opportunity to recapture your lost load; (3) It would stabilize your present water heating load; (4) It would safeguard your promotional sales investment necessary to sell water heaters.

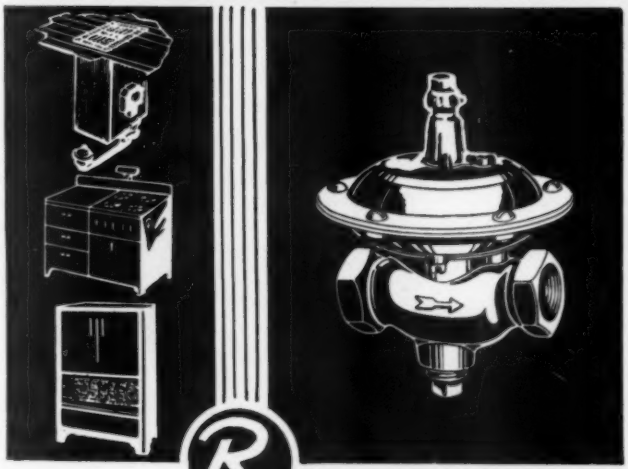
The size of a city is not a factor in the results that can be obtained in the expansion sales program. The following table will show this point:

Size of Company Does Not Influence Sales

No. of Domestic Meters	*% 1 & 2 Family Homes Sold Househeating*
5,500	3.25
10,000	.25
17,000	.75
72,000	1.25
90,000	.3
284,000	.9

Most gas sales managers will admit that an automatic water heater is the most difficult domestic appliance that we have to sell: (1) Because it does not have a good public acceptance; (2) Because it is usually installed in the cellar where the customer can obtain little or no personal pride from it; (3) it is hard to dramatize. The

UNDER CONTROL!



☆ "Under Control" a welcome message from the Fire Chief at a big fire, but a plain statement of facts in the Gas Field when a REYNOLDS Regulator is installed. In the Low Pressure Field where sensitive regulation pays a premium, REYNOLDS offers extreme accuracy—the ability to keep small volume delivery pressure uniform even if the line pressure varies. It pays to buy REYNOLDS Regulators that give 100% operating performance,—Regulators that are rugged, long-lived and sensitive. "Under Control" means a Reynolds Regulator on the job.

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2nd Unit, Santa Fe Building, Dallas, Texas.

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Eastern Appliance Company, Boston, Mass.
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REYNOLDS GAS REGULATOR CO.
ANDERSON, INDIANA, U. S. A.

GAS CONTROL SINCE 1892

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The New Way to a BIGGER Water Heater Volume

The EYE APPEAL Campaign. Complete in every detail, will help you sell more Automatic Gas Water Heaters of any make.

Send for details and samples of

SALES MAKER
SALES PLANNER
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A complete line of new models, Laboratory Tested and Approved. A heater to supply every conceivable Hot Water demand.

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WATER HEATER CORP.
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TITAN WATER HEATER CONTROLS

AGA Approved
TITAN Temperature and Pressure Relief Valve

This device is installed on the hot water outlet in the tank directly in the flow of water. Action, as a result, is unfailing and positive, there being no dead pockets to prevent proper functioning of relief valve.

Pressure relief is obtained through a spring-loaded valve which opens when the pressure reaches a predetermined point. Should the water become overheated to 200° F, a fusible disc melts and lets the water escape thereby preventing a further increase in temperature.

The Titan Relief Valve serves as a coupling connected in the line thereby eliminating the necessity and expense of a tee fitting. To replace fusible disc, it is not necessary to disassemble valves or piping in any way.

Designed for application to storage or range boilers. Prevents corrosion, scalding and explosion.

Catalog and full information upon request.

The Titan Valve & Manufacturing Company

Thermostats • Safety Pilots • Relief Valves • Safetystats
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table below will show that the average number ot water heaters sold per year by salesmen is lower than either ranges or refrigerators:

The Forgotten Load Builder

	% Different Appliances Sold
Ranges	37.2
Refrigerators	24.0
Kitchen Heaters	20.0*
Auto. Water Heaters	13.8
Tank Water Heaters	5.0
Total	100.0

* New rate filed in spring.

It is, therefore, suggested that if you attempt to set up a water heating sales program you give consideration first to a specialty water heater salesman, and secondly to a compensation plan to encourage the sale of water heaters in equal volume to the other more easily sold domestic appliances.

One of the problems, particularly in the larger cities, in the promotion of water heater sales is the low-income group of customers. It would seem that many times we have tried to sell these people a champagne-priced water heater when they have a beer-sized income. As a result, they buy a twenty-dollar oil unit.

In summary, it looks like the future of water heating sales lies in:

1. The solution of the kitchen heating problem;
2. The solution of the house heating problem;
3. Additional man power;
4. Either specialty salesmen, or a compensation plan conducive to the sale of water heaters.

You may well ask, "Do you practice what you preach." In answer, my company is trying to practice what I am preaching.

1. They have made a meter survey of every gas customer on our lines.
2. They have installed a comparative kitchen heating rate.
3. In one property, they have installed a comparative house heating rate and are now contemplating a similar rate in the other properties.
4. They plan to increase the number of gas salesmen 100% starting March 1.
5. They are going back to specialty water heater salesmen with a suitable compensation plan.
6. They have stopped the decline in revenues and have hopes of bringing them back.

The water heating load is a profitable load and will help to pull up your domestic revenues. Do you want it? You can obtain it if: (a) You will analyze your own situation; (b) You will face the facts; (c) You will have the *courage* of your own convictions and *do something about it.* You must spend money to make money.

Someone has said, "The gas industry is not asleep; it has just not gotten out of bed!" I say to you, "The gas industry is getting out of bed; it is just not as yet fully dressed—dressed for action." What we need today in the gas business is *action*—courageous action. There is a job waiting to be done and you can do it. The man who thinks, "he can't" is usually right.

Progress in Reducing Gas Production Costs

by
Leon J. Willien,
Chief Gas Engineer
Public Utility Engineering & Service Corp.
Chicago, Ill.

YOUR Program Committee suggested that I discuss:
Heavy oil operation for carburetted gas.
The use of soft coal.
The Refractory Screen Carburetor Gas Process.
The Curran Knowles Process.
Recent research.

Heavy Oil Operation

The use of heavy oil in the manufacture of carburetted water gas was developed in the East and has been used extensively for at least ten years. For me to attempt to tell you anything new about heavy oil would be like "Carrying Coals to Newcastle". No doubt you can tell me a great deal about heavy oil. I do know that by the use of heavy oil you have made substantial reductions in gas production costs.

It has only been within the past year that heavy oil has been available in the midwest at a price that makes its use attractive. Not more than a half dozen companies are using it at the present time. No doubt a year from now its use will be more general. The companies that are using heavy oil have reduced their production costs from 3 to 5 cents per M. These savings are not entirely due to using heavy oil but are due to the use of heavy oil and 100% coal as generator fuel. The oil is not truly a heavy oil. It is heavy compared with gas oil but the carbon content does not exceed 7%. While a truly heavy oil, known as Bunker C or No. 6 fuel oil containing 10% or more is available there is very little difference in the price of such an oil and an oil known as No. 5 fuel oil containing about 7% carbon. Only two companies have water gas machines especially equipped for handling the real heavy oil. At least one of these companies is using the No. 5 oil in preference to the No. 6 oil. Companies whose machines are not especially equipped for using heavy oils are using a No. 4 fuel oil which contains from 3 to 6% carbon.

The Use of Soft Coal

In the east, heavy oils have been used mostly with 100% coke as generator fuel. By reforming a part of the oil through the fuel bed you have reduced the fuel used per M and increased the oil used per M. The net result has been that the saving in generator fuel cost is more than the added cost of the oil used.

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LEON J. WILLIEN

In the midwest we are not reforming any of the oil through the fuel bed. We are however, in at least three places, using 100% soft coal along with heavy oil introducing all of the oil in the carburetor. We are doing this with practically no smoke. The following are some results with different oils obtained with an 8 ft. Reverse Flow Machine at Fond du Lac, Wis., with 100% soft coal (3x5) as generator fuel. These results were reported in a paper by Mr. John Dopp, Supt. Gas Plant at Fond du Lac, presented at Mid-West Gas School and Conference, Ames, Iowa, November, 1938.

The gas made was 520 Btu. Approximately a 10% blowrun was used. The set capacity varies from 70 to 80 M per hour depending upon the amount of blowrun used. Last month I tested some samples of uprun and backrun blue gas made on this machine. The samples were representative of each run over two coaling periods and did not contain any of the blowrun gas. The Btu of the blue gas was 321.

The following are results obtained on a 9 ft. standard backrun machine with 100% coke and gas oil and 100% coal with No. 4 fuel oil. No blowrun is used.

	Coke	Coal
Fuel #/M	30.6	28.3
Oil gal./M	2.42	2.39
Btu	520	520

The differential in the price per ton between coke and coal in the vicinity of these two plants is between $2.00 and $2.50.

At Fond du Lac the condition of the fuel bed is excellent. It is not deep, in fact it is probably shallower than usual. The top is maintained below the gas take-off connection. The diameter of the fuel charging door is larger than normal and the depth of the throat is less than normal. The fuel buggies have a spreader which drops down into the generator and throws the fuel out around the sides. The top of the fuel bed is concave with the center 12 to 18 inches lower than the sides. This I believe is the secret of the excellent fuel bed condition. The fuel banked up around the sides prevents an excessive flow of air and steam around the sides which tend to form blow holes. The net result is a more uniform distribution of air and steam through the fuel bed maintaining an active condition throughout the entire cross-sec-

Table A

Carbureting Oil	Gas Oil	#4 Fuel Oil	Bunker C or #5	Bunker C or #6
Gravity	32-36	26-28	19-22	10-12
Carbon	-	3-6%	5-7%	10-14%
Fuel #/M	25.95	23.5	23.6	24.01
Oil gals/M ...	2.48	2.70	2.91	3.29
Tar % oil	10	26	26	26

Table B

	Uprun	Backrun	Average
With coke charged on top of coal.....	303	296	300
With coal charged on top of coke	313	302	308

Presented at the Thirteenth Annual Business Conference of The New England Gas Association, Boston, Mass., February 17, 1939.

tion. The fuel bed in the 9 ft. set is convex on top and the center appears to be dead. Some trouble is encountered with blow holes especially after cleaning the fire. I believe that by using soft coal along with heavy oil, gas companies in the east can make an appreciable saving. I doubt however, that any of the oil can be reformed through the fuel bed with 100% coal as generator fuel.

In using a mixture of coal and coke as generator fuel charging the coal on top of the coke will result in a slight increase in the Btu of blue gas, especially the uprun blue gas. Special tests made when using a 50-50 mixture of coal and coke showed the Btu of the blue gas to be as in Table B at the bottom of previous page.

Refractory Screen Carburetor Process

This process is a modification of the Refractory Screen Oil Gas Process for the production of low Btu gas* from Bunker oils and coke for manufactured gas systems. It differs from the original process chiefly in that it is not an all oil system and in the installation of the Refractory Screen in the carburetor instead of in the generator. Coke and Bunker "C" or other high carbon oils are used for generator fuel and the same grade of oil in the carburetor. The proportion of solid and liquid may be varied to realize the benefits of price fluctuations in the relative costs of these fuels. The refractory screen in the carburetor retains the residual carbon from the oil for subsequent gasification through up and down air blasting through the carburetor and in reaction with steam on back run.

The main elements of generating equipment used are the same as those of a standard backrun set with the exception that a thin bed of small refractory shapes is placed at random on top of two or more courses of checkers in the carburetor, oil sprays in the generator top and a branch air line from the air blast header to the top of the superheater for up blast through the carburetor.

The operation differs but little from carburetted water gas. The upblast or back blast through the carburetor screen, which takes the place of the usual upsteam purge through the generator consumes the excess oil carbon and coke deposited on the screen during the uprun portion of the cycle and also purges the rich

* Editors Note:—By "low Btu gas" is meant that in the range of manufactured gas heating values, i.e. 525 to 550 Btu. The word "low" is used to distinguish this from "high" heating value gas used to replace natural gas.

For Carburetted Water Gas Production

The REFRACTORY SCREEN CARBURETOR PROCESS

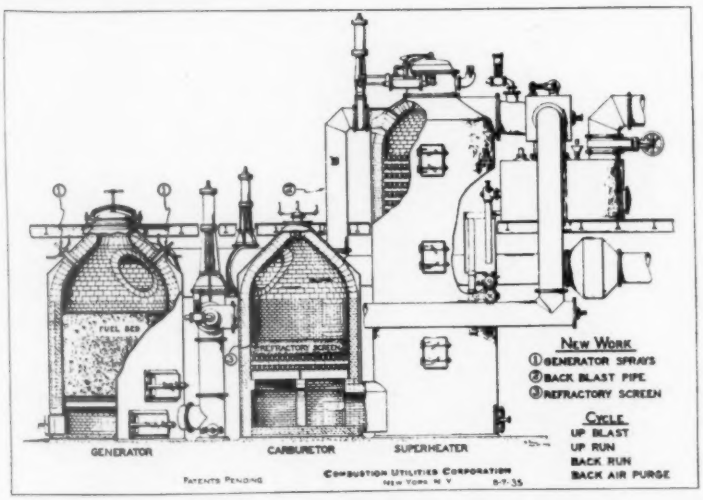
takes full advantage of factors favorable to low cost water gas production.

It makes available the economic utilization of heavy fuel oils and low cost solid fuels for production requirements . . . no smoke or other annoying production difficulties.

It makes possible the securing of maximum credits from tar and other residuals.

It permits a wide variation in the proportion of solid fuels and oil, so that full economic advantage may be taken of price fluctuations in the cost of raw materials.

These advantages are attained without operating difficulties usually associated with the utilization of heavy oil and low cost solid fuels.



Investigate this process which is giving highly satisfactory results in present commercial operations.

Your Inquiry Will Receive Prompt Attention

Combustion Utilities Corporation

IMPROVED EQUIPMENT-RUSSELL ENGINEERING DIVISION

Engineers-Builders

60 Wall Street New York, N. Y.

gases to the holder. On the upblast that follows the stack valve opens clean and as over-ventilated secondary air is admitted simultaneous to the opening of the stack no smoke is observed during the cycle. The excess secondary air further consumes carbon and conditions the screen for carbon retention on the run phase of the cycle. No carbon mat is formed in the base of the carburetor.

On the uprun which follows, oil is simultaneously sprayed on top of the generator fuel and into the top of the carburetor; the screen retaining the coke blow over and oil carbon thus greatly reducing carbon contamination in the washbox and the formation of viscous tar emulsions.

During the backrun the steam passes through the carburetor screen and reacts with the deposited carbon to form some blue gas, oil is sprayed into the generator for a portion of this backrun producing a low gravity oil gas which compensates for the higher gravity gas produced during the back blast purge through the carburetor screen. The per cent of oil reform may be varied over a wide range making it possible to operate a set with high or low solid fuel requirements.

Cycle time is from 4 to 5 minutes depending on quality of coke and oil and set conditions as affected by valve opening time, etc.

Following is typical of production data:

Production Data

Typical Gas Analyses	Sp. Gr. 0.60	Sp. Gr. 0.66
Btu	535	535
CO_2	2.9	4.4
Ill	8.3	8.9
O_2	0.5	0.5
CO	26.0	27.6
H_2	39.6	34.6
CH_4	14.9	14.5
N_2	6.8	9.5

Fuel Results (535 Btu Gas 0.65-0.68 sp. gr.) Bunker C. Fuel Oil	Low Coke	High Coke
Coke lbs/MCF	14	20
Oil gal/MCF	4.5	3.6
Tar gal/MCF	1.3	1.2
Residuum Oil		
Coke lbs/MCF	14	20
Oil gal/MCF	4.2	3.2
Tar gal/MCF	1.1	0.9
Steam lbs/MCF	20	30

Oil Characteristics	Bunker "C"	Residuum Oil
A.P.I.	10-12°	14-18°
Conradson Carbon	10-12%	4-6%
Water and Sediment	0.5	0.3
Btu gal.	150,000	145,000

This process has been used in Havana, Cuba for the past six years and I understand that it has just been recently installed on an 11 ft. backrun unit at New Bedford, Mass. No doubt authentic data on the economies of this process will be available from the New Bedford installation. Such data should be of particular interest to you New England gas men.

Curran Knowles Ovens

The primary function of the Curran Knowles Oven is the conversion of low value bituminous screenings to high grade smokeless domestic fuels. The coal used is fine screenings which pass through a 5/16" screen. The products are a domestic coke, called carbonite, coke fines, tar and surplus gas.

The ovens are approximately 30 ft. long, 7½ ft. wide and 4 ft. high, inside dimensions. A charge consists of about 5 tons. It is introduced through 8 charging holes in the top and leveled to a uniform layer 10 to 12 inches thick by running the pusher arm, with pusher head removed, over the mass after charging but before closing the end doors of the ovens. The ground space required for the ovens is slightly less than that for the average horizontal retort plant per ton of coal carbonized. It is actually 30 sq. ft. per ton of coal carbonized per day.

Heat is applied to the bottom of the ovens and carbonizes the coal from underneath, instead of from both sides as is common. Normal coking time for Illinois coal is 10 hours per charge. The rate of progress of the plastic zone through the coal mass during carbonization is approximately 1 inch per hour, the same rate as the total coking speed found most desirable for the processing of this type of coal (containing 10% moisture) when heated from two sides in typical high temperature ovens. The temperature in the combustion flue is about 2500°F. Before entering the stack the flue gases pass through waste heat regenerators which reduce their temperature to 450 or 500°F. The ovens are heated with coal gas. They can also be heated with producer gas. The total heat input is approximately 1040 Btu per pound of coal carbonized.

Because the formation of the plastic zone during carbonization travels upward through the charge the volatile constituents are not subjected to a temperature higher than that at which they are liberated. To some extent the volatile matter condenses in the coal above. This is believed to increase the coking power of coals which otherwise would be feebly coking. The result is a high strength, more rugged coke from mid-continent bituminous coal than is usual in high temperature ovens. This also results in greater yields of light oil and tar-acid constituents of the tar. The tar yield is 9 to 10 gals. per ton, contains about 2% free carbon, 30 to 35% tar acids and is very fluid at normal temperatures. This process is capable of carbonizing a swelling coal which is not possible with the ordinary coke oven.

The coke produced is superior to retort coke. The yield is the same as with horizontal retorts. Its combustion characteristics resemble low temperature coke in ease of ignition and ability for supporting combustion at moderate fuel bed temperatures. It is extensively used for domestic purposes, and to a lesser extent in foundries. The gas produced is typical coal gas. Total gas production is approximately 8900 cu.ft. of 550 Btu gas per ton.

An interesting feature of the Curran Knowles Plant is the use of a part of the surplus gas in small automobile engines for driving the various types of equipment, pumps, exhausters, compressors, etc. The automobile engines used on the pusher and quench car utilize benzol drip and gasoline, not gas. The gas required for plant power is approximately 300 cu.ft. per ton of coal carbonized.

In general the Curran Knowles Ovens are intended for use in association with coal mines for the processing of surplus fines. Because of simple refractory design the ovens can be shut down and started with much greater flexibility than with typical high temperature equipment. The builders believe that they have

nearly the same flexibility as a steam boiler because the brick work is similar to that involved in a boiler setting.

The capital investment required per 1000 cu.ft. capacity per day is about the same as a retort plant. If the ovens are underfired with producer gas or oil, the capital investment cost per unit of gas production is substantially lower than if the underfiring is done with part of the coal gas produced. The lowest production costs are obtained when the ovens are underfired with their own gas, and if the coke can be sold at a reasonable price. This is true of any coal carbonizing process.

According to an article in the January 1939 issue of *American Gas Journal* on the Curran Knowles Gas Plant at Owen Sound, Ontario, a plant of 3 ovens producing approximately 140 M per day of surplus gas requires two men per shift with one mechanic on the day shift to take care of repairs and prepare the coal. No data on actual production costs have been published. I understand that the Curran Knowles ovens replaced three benches of stopped end horizontal retorts and that a material reduction in production cost has resulted. The coal used in the retorts was Elkhorn egg size (3x5) costing in the neighborhood of $2.50 per ton at the mines. (This coal costs about $2.00 per ton at the mines now.) The coal used in the new oven plant is ¼" screenings which sells at the present time prices not in excess of $1.00 per ton at the mines. Due to the superior quality of the coke made in the ovens it is being sold at $1.00 per ton more than the coke from the horizontal retorts. The principal difference between the egg size coal and screenings is that the ash in the egg coal is about 3% and 4½% in the screenings. The net effect of the change at Owen Sound is a saving of approximately $1.50 to $1.00 per ton of coal and an increase of about $1.00 per ton in the net return on the coke produced. Under such conditions it is obvious that an appreciable saving can be made in gas production costs provided a satisfactory coke market exists. We are using stove coal (2 x 1¼) in stopped and horizontal retorts which sells for about $1.75 at the mines at present.

From this it seems that the use of the Curran Knowles ovens offers a possibility of reducing gas production costs by utilizing a cheaper coal and producing a better coke than is possible with horizontal retorts. This applies particularly to medium and small size plants.

In the midwest the coke market is well supplied by large coke oven plants in Chicago, Milwaukee, St. Paul and Duluth. Coke has been shipped into Wisconsin from Detroit by boat. Largely for this reason several plants that formerly made a mixed gas have shut down their coal gas plants and are making 100% water gas and have thereby reduced their gas production costs. In a few cases where gas sendouts are less than 200 M per day a change has been made from water gas to butane air gas. Such a change does not seem justified unless production costs are 70 cents per M or more.

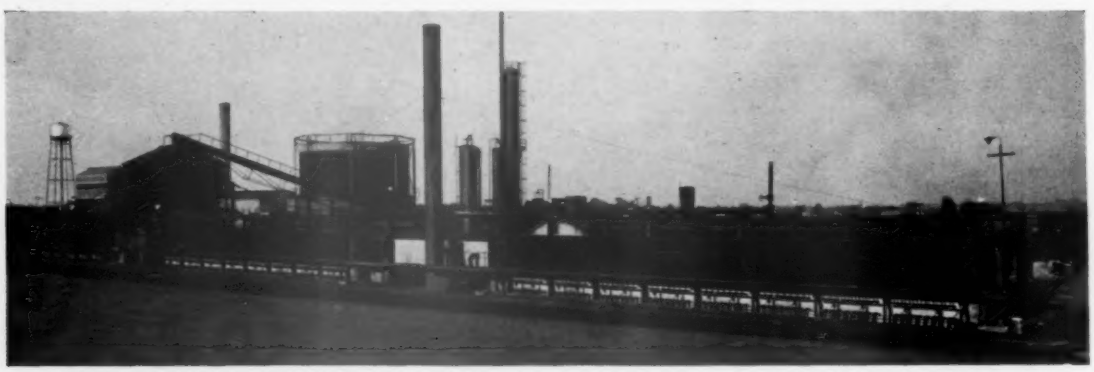
Prospects For Further Reductions in Production Costs

Have we reached the ultimate in reducing our gas production costs?

What are the possibilities of further reductions?

Personally, I believe that the possibilities of further reductions in gas production costs with our present processes of manufacture are very small. When one considers that the thermal efficiencies of both the coal gas and carbureted water gas processes are 80% and with carbureted water gas that more than 50% of the net production cost is for fuel and oil, it is obvious that there is very little

(Continued on page 58)



CURRAN-KNOWLES GAS AND COKE OVENS

A New High Temperature Carbonizing Process, making use of Old Accepted Principles to avoid After Cracking of Gas and By-Products. Developed by Experienced Engineers and Installed by an Organization Headed by Engineering Executives.

These ovens successfully carbonize Low Volatile, High Volatile, Swelling or Non-Swelling Coals.

Give a high yield of superior quality coke for water gas generator fuel, industrial and domestic use. Also a high yield of tar of excellent quality, and a uniform quality of gas which meets Commission requirements.

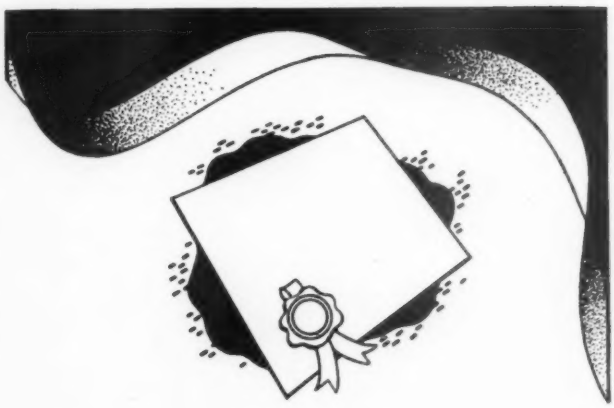
Substantial construction with low initial cost per M. capacity and low operating cost due to simplicity of design.

Built to suit any situation—large or small. Over 5 years' successful operation, furnishing surplus gas for local distribution.

Ask for bulletins showing plants now in operation and quality of coke produced.

COAL CARBONIZING COMPANY

BANK OF COMMERCE BLDG. ST. LOUIS, MO.



TO THE EXECUTIVE

who wants to reduce cost of gas purification—but, who, heretofore, has hesitated to risk the present "fairly satisfactory" showing:

Your trial of the advantages of Lavino Activated Oxides now can be made without any risk whatsoever! Read this Guarantee—

"In all cases where gas purification practices be such as are recognized generally as standard—E. J. Lavino and Company will guarantee, in writing, a definite maximum cost per pound of sulphur removed using Lavino Activated Oxides."

Applied to your own plant, your own conditions of use, this Guarantee means that H_2S removal with Lavino Activated Oxides can't cost you a penny more than the definite maximum estimated in our written Guarantee . . . and our estimated costs usually are a saving worthwhile!

LAVINO "ACTIVATED" OXIDES

Make your decision on this Predetermined Cost basis: we need only your O.K. to go ahead. We suggest you call in your secretary and dictate a note to us *now.*

E. J. LAVINO and COMPANY
1528 Walnut St., Philadelphia, Pa.

In order to minimize the possibility of mold forming in the boxes we are disinfecting all Lavino Oxides. (Mold liberates H_2S.)

THE PITTSBURGH COAL CO CHAMPION COAL — PITTSBURGH, PA —

Leading Engineers

KNOW *and* PREFER

CHAMPION GAS COAL

MINED FROM NATURE'S RICHEST GAS COAL SEAM....

Champion is preferred because it comes from the one and only genuine Youghiogheny Gas Coal Seam—famous throughout all industry for its characteristic gas-making properties. When you specify Champion Youghiogheny Gas Coal, you not only get the desired gas yield but also a gas of superior quality and fuel value.

Your inquiries are invited.

PITTSBURGH COAL COMPANY
PITTSBURGH, PA.

District Offices in Principal Cities

Trends in Service Practice

by
Andrew W. Johnston, Jr.
Superintendent of Customer Service,
The Hartford Gas Company

OPERATING expenses demand closer scrutiny today than ever before. Their rising trend, out of proportion to our revenue increase, indicates a definite need for more revenue or less expense. Realizing that we can not increase revenue without additional promotional effort, which costs money, let us direct our attention to the lowering of our operating expenses. Among the items of operating expense is the cost of our Service. What can we do to bring it back into line? Some favor curtailing it; others want to charge the customer; and still others believe in revamping it along more economic lines. With the aid of the opinions of a number of our leaders in New England, I am going to try and point out the direction of our thinking along these lines, indicating where I can, methods and alternatives which are being tried and found to be workable.

First of all are our appliance servicing costs increasing, and if so, what are the causes of this increase? Without exception, we all agree that the increasing trend in automatic appliances is definitely increasing service costs. We believe that the greater use of accessories, particularly pilots, materially increases the number of orders. We further agree that complicated controls, and concealed construction require a much longer time to service, and demand much better trained personnel to do the servicing. This I am sure, is a correct composite statement of the most easily recognized cause for our increasing costs. I might add, that there are a number of less obvious contributors some of which we will touch on later in our discussion.

Is Free Appliance Service Necessary?

It is very evident that we must differentiate at the very beginning between appliance service and parts service. The adjusting, cleaning and servicing of appliances, I shall call appliance service; the replacement of parts, renewing controls, etc., we can call parts service. How do we feel about charging the customer for appliance service! Can we offset our increasing expenses by making the customer pay? On this question, as a group, we believe that a charge would bring about loss of good will, dissatisfaction with the appliance, poor and possibly hazardous operating conditions, with a resulting loss in revenue and serious inroads by competition. This is the opinion of all but two companies. I can say too that all companies contacted give free appliance service—unlimited, except for two. Without considering the sales value of our free service, why do we believe that free service is necessary? Fortunately and unfortunately, our appliances will operate when poorly adjusted, or for that matter, when out of adjustment. A charge for service would postpone a necessary service call. In this postponement lies the evil, and in our judgment, the need for free service. From this, I can say that mass opinion in this section is definitely in favor of continuing our free service policy. Some of us might consider limited service and find it workable—what effect it will have I am unable to say.

The author recommends careful selection of sales appliances, constant training of personnel, the correction of trouble before it starts, reasonable guarantees and terms, a charge for parts service but a continuation of free appliance service.—Ed.

Parts Service

Going on now to parts service. The consensus here, favors a charge for both labor and material on appliances beyond warranty. Some few companies charge for parts but give the labor free. Practically all of us charge for this work and about half show a profit. I should like to call attention to the fact that we do charge, and we do in most cases collect this charge, proving that it can be done. Here, if I may, let me point out two serious contributors to increased service costs—Guarantee Periods and Long Term Financing! These two sales expedients are the cause of no end of trouble and expense unless we are protected against them.

We believe in charging for parts beyond warranty on the one hand; but, on the other, we either guarantee or finance appliances over such a long period, without protection, that we nullify our charge policy. For example, I cite the guarantee periods submitted by fourteen companies on refrigeration:—Two give life time guarantees, two more indefinite guarantee, six give five years, one gives four years, two three years, and only one guarantees the appliance for the period of the manufacturer's guarantee. Yet, few of us sell the customer protection. The same thing is true of long term financing! When we accept long term contracts we know that we must assume the liability for replacing parts on the appliance until it is paid for. How many of us really protect ourselves against these expenses? I grant that both are inducements which are found very often necessary in order to stimulate sales during the promotional stage; but I also say let the customer pay for them and not the Company.

The careful selection of new appliances for sale offers still another means of reducing service costs. Our weakness here seems to lie in the fact that we do not satisfy ourselves that an appliance is the one best suited to do the job before we place it on our lines. To get around this, storeroom inspection and test of each new appliance before it is set is gaining popularity. Our poll indicates that it is preferred over either field or laboratory test by a number of companies. Such a system has the advantage of eliminating at one time, a number of minor difficulties which might require several visits to correct in the field. It is better than field or laboratory test in that shipments subsequent to the test models are each

Presented at the Thirteenth Annual Business Conference of The New England Gas Association, Boston, Mass., February 16, 1939.

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NORDSTROM *manufactures more than 1,000 different sizes and variations of lubricated plug valves, for use in the Gas, Petroleum, Refining, Chemical and other Industries. There is a size and type of Nordstrom Valve to meet every major valve need, on lines ranging from ½" to 30".*

TESTED AND WORKING PRESSURES—Every Nordstrom Valve receives a Hydrostatic Test of at least 100% in excess of its rated pressure. They are subjected to drastic tests to insure against porosity, line leakage, and for bursting strength. Valves are available in tested pressures of up to 10,000 pounds, working pressures of up to 5,000 pounds.

STEAM JACKETED TYPES—To provide for the external heating of valves, Nordstrom manufactures steam jacketed plug valves. This type is particularly essential in the production of sulphur from wells and transmission of liquids which must be kept heated.

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gone over sufficiently to recognize poor assembly or any of the other deficiencies a manufacturer might fall into. The enthusiasm shown by the companies using this method of test is enough to warrant our further investigation.

The Relation Between Our Cost for Service and the Ultimate Cost of Appliance

Our attitude towards the Appliance Manufacturer is another important factor in the selecting and ultimate cost of appliances. Here we have the alternative of passing full responsibility for testing and parts service to him, or we can work with him, absorbing a part of the cost ourselves. To shift the burden of test and part replacement wholly to him is, in the end, in my estimation, more costly than doing it ourselves. If we look at the national manufacturing organizations which maintain individual service departments we can not help but see this cost reflected in the product. I believe we can do it cheaper because we would not duplicate overheads and we do have greater flexibility. There is, therefore, a definite relation between our cost for service and the ultimate cost for an appliance; our problem is to decide which is the more economical way to operate. We can further lower the cost of appliances by deciding collectively which accessories we think are adaptable and then letting the manufacturer standardize as much as possible. This can only be done through an appliance servicing committee within the Association. Many of us believe such a committee to be a necessity at this time.

Dealer Relations and Service

Our relations with our dealers are very limited, due in all probability to the fact that we have so few of them. We offer them about the same appliance service that we give our customers and we do not post-inspect their appliances unless they are sold through the Company. Here, our non-merchandising electric competitor passes most of the cost for parts service and a fair amount of the appliance service back to the dealer who originally sold the appliance. With us it can not be done because we merchandise and we have so few dealers. Where a large proportion of the appliance merchandising is done by dealers the problem of the utility's service costs loses much of its importance. If our costs for installation, part service, service during financing, repossession and the like are approaching the amount of our profit, merchandising becomes less attractive to us and should encourage the study of plans to increase dealer merchandising activity. From the service point of view it presents a definite means of reducing costs.

What can we do to strengthen our service as it now stands? Leaving out the vagaries of our gas from the plant point of view, how can we revamp our service practices—take short cuts—eliminate waste—and do away with unnecessary calls. It is my belief that in clearing up this situation we will have gone a long way towards bringing our service costs back into line. There are two ways of approaching this service betterment question—the one, prevention; and the other, cure. With the prevention idea we anticipate trouble and correct it before it happens; while with cure, it is a case of getting there in a hurry and doing a good job.

To correct the trouble before it occurs! How can we do it? Some of our companies are going into it by installing filters on chronic complaints of outage; others are installing regulators on each new appliance; some are carrying on voluntary or periodic inspections; others are adjusting each appliance in storeroom; and many are instructing the customer in appliance operation. These are all preventive measures intended to correct trouble before it happens. What have such methods in their favor? In the first place, they are mass production ways of getting results, by paying a little more now at a good load factor, to save a lot more at a poor load factor later. Secondly, they develop better relations and greater satisfaction because the customer feels he is getting more than ordinary service. While several companies are aggressively pushing the idea, with reputed good results, the number is far too few. It seems to me that this is an experimental field into which all of us might probe. With many companies participating, it would not be long before we all had a pretty good knowledge of the merits and costs of preventive measures. As it is, we know little and we are progressing very slowly.

How about the curative side of the picture—our trouble service? Here, our first and worst weakness is lack of employee training with its resultant and continual repeat calls. Next is our inability to dig out and quickly correct chronic complaints; and last, our lack of knowledge as to what our service costs. Because of their importance, I should like to take a few minutes discussing each.

Employee Training

Employee training to be effective mush combine two things—training and gauging results. Unfortunately, there is not much that I can say about training except that it must be continual and repeated day after day without let-up. As to methods, our companies feel that the first and best is field work with a Supervisor, followed in order of preference with—field work with another serviceman, small group meetings and then individual test room work. Most of us probably feel that a combination of several of these methods is the ideal for our local situation. For instance, the duties of a Supervisor demand that he accompany each of his men periodically as well as follow-up his work. In carrying out his own supervision duty he is in a position to instruct his men when he is with them, and subsequently, when he finds things on his follow-up which are not done in the prescribed manner. This, carried on in conjunction with frequent small group meetings, limited to a size small enough so that each man can actually demonstrate every point under discussion, presents what, in my judgment, is the most thorough and inexpensive means of training servicemen. As in all such systems, it requires close cooperation between Supervisors and groups.

Gauging Results

How can we "gauge" results? We go to the customer for part of the answer and to the Supervisor for the rest. The customer is contacted by both the Supervisor and the salesman; either can very quickly determine what the customer thinks about the service he has been rendered. Each unfavorable report should be checked back to its source—if it shows up a weakness in our system, then correct the system. Remember, our service is only as good as our customer thinks it is—how good we know it to be is of no value unless we can convince him. Telephone and letter inquiries are an inexpensive but helpful means of obtaining customer reaction. Very often the customer writes unsolicited to report, in most cases, poor service. Still, there are times when he wishes to commend the employee who has given what he feels to be excellent service. The check made by the Supervisor while calling with his men and following-up their work is important because in addition to securing the customer's reaction he is in a position to see whether the work was done properly,

something the customer very often does not know. Because of its expense, supervision must of necessity be limited. For this reason, we are required to use as many of the other sampling methods as will fit in with our scheme of operations.

Second on our list of contributors to poor service and high costs is our inability to recognize, dig out and quickly correct chronic complaints. I will agree right at the start that sooner or later chronic complaints come to light via a letter to the president or a notice to remove the appliance. To correct the trouble then is either too late or to say the least, embarrassing. At that stage we are dealing with an irate customer and it must be admitted that we have wasted good time and money doing nothing. Recognizing these complaints is a function of the Dispatching Office. It can be best done by checking each incoming call against the completed work order file. If the call turns out to be a recurring complaint the dispatcher makes out a repeat call sheet which is passed on to the Supervisor. Once found, and brought out of hiding, it is a comparatively simple job for the Supervisor to order, for instance, a filter or send out a special man who can clean up the situation. The repeat call sheets have the further advantage of calling attention to poor work or continued wrong diagnosis. They are helpful in discussing problems either privately or in group meetings with the men. Gentlemen, if ever we make a costly error, it is when we permit service calls to pyramid. To you who do not now use this check system, I ask that you try it for one month. Your results, to say the least, will be surprising.

Cost Records

Last, but not least, we come to the subject of cost records. On this score, as a group, we are woefully deficient, particularly in parts service during warrantee. To attempt to reduce or control costs without records is in my opinion impossible. A simple system of daily tabulating orders by the type appliance offers a quick check on operations. Through it, we can immediately spot anything out of line and institute corrective measures. This, along with an account system for labor and material, corresponding to our order count makes any undue increase stick out like a sore thumb—conspicuous and ready for treatment. Let our Supervisors go over, and be accountable for, these reports. It stimulates interest, makes them conscious of expenditures, and very often produces suggestions which accomplish results. Whether we operate a five or five hundred man company, cost records are necessary and essential.

Through the kindness of the contributing companies I am able to submit for your information the following statistics which may be useful in comparing your service operations with that of a fair cross-section of our territory. In using them, due consideration must be given to differences in classification, local conditions and the like.

In closing, let me summarize our situation as I see it. First, let us continue our free appliance service. Second, select our sales appliances carefully, keep guarantees and terms within reasonable limits and charge for part service. Third, adopt proven preventive measures to correct trouble before it starts. Fourth, train personnel constantly, eliminate repeat calls and keep cost records to correct trouble as soon as it starts. If we can accomplish these things with any degree of success, I feel that the increasing use of automatic appliances need not cause undue worry, nor make it necessary for us to curtail our service.

Statistics on Service Operations

	5,000-30,000 Meters	30 000-80,000 Meters	Average all Companies
MFC sales per meter	29.8	39.6	37.8
Meters per serviceman	1865.	3090.	2760.
Calls per meter	0.50	0.49	0.49
Calls per range in use per year	0.26	0.27	0.27
Calls per A.W.H. in use per year	1.06	1.31	1.24
Calls per Refg. in use per year	1.11	1.26	1.24
Service cost per MCF sold	$ 0.025	$ 0.023	$ 0.023
Service cost per meter	0.775	0.803	0.795
Service cost per call	1.57	1.35	1.39
Cost per range in use per year	0.348	0.355	0.354
Cost per A.W.H. in use per year	1.30	1.30	1.30
Cost per Refg. in use per year	0.98	1.72	1.63

Note: These service costs do not include parts service during warrantee.

Sales Contest Awards of The New England Gas Association

This year, there were 57 entrants in the Sales Contest, consisting of 46 companies and 11 districts. In order to have a more even distribution of competing companies in each class, the company meter classifications were changed.

The contest for the largest number of faucet type automatic water heater sales included all companies regardless of size. Thirty-four entrants competed as against 30 last year. Blackstone Valley is the winner with an outstanding record of 2.48 units sold per 100 domestic meters.

The following companies achieved the best record of any New England company for the following appliance sales:

Ranges—Buzzards Bay in Class D had an exceptional record of 12.53 units sold per 100 domestic meters.

Automatic Water Heaters (thermostatically controlled)—Greenwich in Class D with a record of 6.44 units sold per 100 domestic meters.

Refrigerators—Buzzards Bay in Class D with a record of 2.73 units sold per 100 domestic meters.

Kitchen Heating—Winsted District of The Connecticut Light & Power Company in Class E with a record of 1.76 installations per 100 domestic meters.

Space Heating—Buzzards Bay with a record of 3.3 installations per 100 domestic meters.

Here are some records worthy of special mention:

Portland won 3 awards in Class B and finished second in a fourth appliance.

Newport won 3 awards in Class C.

New London Division of The Connecticut Power Company won 2 awards in Class C.

Buzzards Bay made an outstanding record by winning 3 awards in Class D and by having the best record of any company in New England regardless of size for the per-meter sales of ranges, refrigerators and space heating installations.

Nantucket and Portsmouth each won 2 awards in Class E.

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Knowledge of Law Avoids Liability

By
Leo T. Parker
Attorney at Law
Cincinnati, Ohio

EVERY gas company official has occasion to determine questions of law. Obviously, a correct solution of a legal problem may avoid litigation and consequently result in a great saving of time and money.

The principal advantage to gas company officials in obtaining reliable legal information in simplified form is that generally litigation may be avoided. One dependable way of minimizing company chances of financial loss is in being familiar with the outcome of recent higher court decisions involving other gas companies. By this method officials will be able to eliminate many causes of litigation.

For example, considerable discussion has arisen from time to time with respect to the legal effect of a city ordinance which makes it unlawful for gas fitters to allow gas to flow through gas piping unless previously inspected and tested.

It is important to know that recently a higher court held that an ordinance of this nature applies particularly to gas fitters, owners and persons controlling the premises, and also to gas companies under certain circumstances as, for example, when a company first connects its line with the premises. In other words, if the owner of premises desires to make further extensions, after the gas company has connected and inspected its line to the premises, such owner cannot hold the gas company liable in damages for injuries resulting from defects in the installation or failure to comply with the city ordinance.

The latest higher court case involving this point of law is Lone Star Gas Co. v. Eckel, 110 S.W. (2d) 936. In this case a city ordinance was litigated which provided:

"It shall be unlawful for any person, firm or corporation, owning or controlling any building in the City of Fort Worth, in which new gas piping may hereafter be installed, or existing gas piping altered, or any gas fitter or any other person to allow gas to flow through such piping, unless the same has been inspected and tested by the Inspector of Plumbing. . . ."

A person who was employed in a school building filed suit against a gas company to recover damages for personal injuries sustained when a gas explosion occurred in the building. The testimony showed that the school district undertook to extend its gas lines from the main building to an annex and that the extensions were made by the plumbers employed by the school district, without any assistance from or supervision by the gas company. However, the injured person proved that the gas company had installed a gas meter on the premises just previously to the explosion and that it was negligent and rendered liable for the injury because its employe did not test the pipes. However, it is interesting to observe that the higher court indicated that the gas company was not liable, and stated the following important law:

"It cannot be said that appellant (company) should have anticipated that the owners of the school premises would be negligent in extending its gas lines, or that they would breach the provisions of the city ordinance in question, but it had the right to assume that the extension pipes were sufficiently secure to permit the flow of gas in them, unless it was actually put upon notice that such facts did not exist, or were given such information as would put a reasonably prudent person upon notice that defects probably existed, making the flow of gas on the premises dangerous. If this were not a sound and necessary rule, then whenever a consumer of natural gas caused a new stove to be installed on his premises by a plumber of his own selection, the gas company could be held liable for damages resulting from a gas leak occasioned by the negligent acts of such plumber."

Also, in the leading case of Portsmouth Gas Co. v. Maddox, 185 N.E. 527, it was disclosed that gas escaped from a defective service line on the property of a consumer, and an explosion resulted and effected serious injury. The higher court refused to hold the gas company liable, and said:

"Another rule, however, applies where gas escapes from a defective service line on the property of a consumer. In such case the service line is the property of the consumer and not of the gas company. The gas company in case of a defective service line is only held responsible when it has had notice of the defect and has had an opportunity to shut off the gas or remedy the defect."

Employe Receipts Partly Paid Bill

Generally speaking, a gas company is liable for contracts and agreements made by employes authorized to represent the company. Therefore, if an employe agrees to accept part payment of a gas bill and delay cutting off the gas supply, the company is bound by the agreement.

For example, in Arkansas-Louisiana Gas Co. v. Phillips, 117 S.W. (2d) 349, it was disclosed that a woman filed suit against a gas company to recover damages for wrongfully cutting off the gas from her apartment, on the 6th day of July. She testified that she was deprived of the use of hot water and hot packs to treat her left arm on which an operation had been performed by her physician in an effort to cure rheumatoid arthritis of her wrist, with which she was afflicted, and that the lack of hot water and hot packs prescribed by her physician caused her to suffer great pain and allowed the adhesions he had broken in the joint to knit together again without accomplishing the purpose for which they had been broken.

The gas company filed an answer denying that it had wrongfully cut off the gas or that the lack of hot water and hot packs, in which to keep her arm after the operation had added to her pain and suffering or was the proximate cause of the stiff joint or ankylosis of her wrist but was the natural result of the disease with which she was affiicted.

Testimony was introduced upon the issues joined, and the cause was submitted to the jury upon evidence adduced by the respective parties and instructions of the court, resulting in a verdict and judgment against the gas company for $1000. The company appealed to the higher court and proved that the contract for gas service signed by the woman required her to comply with the company's rules and regulations, one of which was to pay her gas bills monthly, and upon failure to do so the gas company should have the right to cut off the gas. Also that she failed to pay her bills and was notified that unless she paid her bills that were past-due on June 10, her gas would be cut off.

The woman testified and proved that when she received the notice she went to see the company's employe and explained that she only had $5, which amount she was willing to pay on the bill provided the balance due would be added to her current bill for the next month, which would become due on July 17. She further testified that after the operation was performed on the morning of July 6, the gas was cut off so that she could not use hot water and hot packs on her arm to prevent swelling and pain and suffering during the time of her recovery. She further testified that the parties living in the other part of the apartment building were away working, and that she had no way to get hot water and hot packs after the gas was cut off and that she received no notice that same would be cut off before her arm was operated upon.

In view of these facts the higher court sustained the lower court's verdict which held the gas company liable in damages, and said:

"The issue of whether or not appellant (company) accepted $5 as a payment on its bill and extended the time for further payment to July 17 was clearly one for the jury and being submitted under correct instructions appellant (company) is bound by the verdict against it on that issue. . . . Both physicians testified, in substance, that hot water and hot packs would prevent swelling and pain. It may be said then that under the evidence it is practically undisputed that on account of the failure to get hot water and hot packs she suffered much pain during the time she was ill."

Also see Maryland v. Moon, 231 Mich. 56, in which the court said:

"Whenever a principal has placed an agent in such a situation that a person of ordinary prudence, conversant with business usages and the nature of the particular business, is justified in assuming that such agent is authorized to perform in behalf of the principal, the particular act, and such particular act has been performed, the principal is estopped from denying the agent's authority to perform it."

Avoid Dangers of Gas

It is well settled law that a man or company who delivers an article, which he knows to be dangerous or noxious, to another person, without notice of its nature and qualities, is liable for any injury which may reasonably be contemplated as likely to result, and which does in fact result, therefrom, to that person or any other, who is not himself in fault.

Other courts have held that one who delivers such an article or substance is liable even though he was ignorant of its noxious character, if in the exercise of ordinary prudence he or his employes should have possessed such knowledge.

For example, in the case of Grinnell v. Carbide & Carbon Chemicals Corporation, and Shepard v. Same, 276 N.W. 535, it was shown that a company delivered gas in a container. The consumer, when using it, sustained severe injuries as the result of an explosion caused by the fact that the company had not explained to the consumer the known dangers of using the gas for the purposes intended. The higher court promptly indicated that the injured consumer was entitled to damages, and said:

"A man who orders a work to be executed, from which, in the natural course of things injurious consequences to his neighbors must be expected to arise, unless means are adopted by which such consequences may be averted, is bound to see to the doing of that which is necessary to prevent mischief, and cannot relieve himself of his responsibility. . . ."

Validity of Contracts

Various courts have held that contracts between a gas company and its customers, whether made prior to incorporation of city or thereafter cannot limit the city's statutory right to regulate its business. In other words, the governmental power of self-protection cannot be contracted away, nor can the exercise of rights granted, nor the use of property, be withdrawn from the implied liability to governmental regulations in particulars essential to the preservation of the community from injury. The general rule on this subject deducible from the latest higher courts is that the legislative power vested in municipal bodies is something which cannot be bartered away in such manner as to disable them from the performance of their public functions.

Contracts may create rights of property, but, when contracts deal with a subject-matter which lies within the control of the United States Congress, or State Legislative bodies, they have a congenital infirmity. Parties cannot remove their transactions from the reach of dominant constitutional power by making contracts about them.

However, perhaps a review of a recent higher court case will illustrate the law better than mere explanation.

For illustration, in the late case of City of Wink et al. v. Wink Gas Co., 115 S.W. (2d) 973, it was shown that the Board of Commissioners of a city passed an ordinance prescribing the rates to be charged for natural gas in the city. A schedule was adopted by which the rates per thousand cubic feet diminished with increased consumption. The ordinance contained other regulatory provisions. Later an ordinance was passed, with an emergency clause attached, which contained the following provisions:

"Section 1. That from and after the passage, approval and publication of this ordinance it shall be unlawful for any person, firm, corporation, or association engaged in the business of the distribution and sale of natural gas in the city to demand, insist upon, or require by contract, stipulation, rule, or otherwise, the setting of more than one meter to measure the gas furnished to one consumer or property owned or leased by him at one location, unless more than one meter is requested by such property owners or lessee."

The gas company filed suit against the city seeking to enjoin the city and its officers from enforcing the ordinance for the following reasons: (a) That it would force the company to unlawfully discriminate between its customers; (b) that it would deprive the company of large sums of revenue by requiring it to sell and distribute gas to all who have and maintain more than one house on one meter for a lesser price and at a lesser revenue than would be received if sale and distribution were made through a single meter for each separate use and establishment; (c) that it would apparently destroy the obligations of various contracts between the company and customers, which, it alleged, were made prior to the incorporation of the city.

Notwithstanding these objections the higher court held the ordinance valid and effective. The court said:

"No contract between appellee (company) and its customers, whether made prior to the incorporation of the city or thereafter, can destroy or limit the city's rights to regulate rates. . . ."

The higher court when declaring the ordinance valid, anticipated uses of gas by various travelers. This court said:

"At times it is not only conceivable, but more than probable, that facilities for heating water and food will be necessary for the health of infants traveling with their parents and for the comfort and well-being of the adults. It is not unreasonable to anticipate that many of these travelers will remain but a few hours, or at most a few days, and desire facilities for cooking and for heating water for bathing. . . ."

1532 Gas Ranges Sold In Vigorous 12-Day Campaign

Record Set By Cities Service Utility And Dealers

By
John Beall

THE Gas Service Company's new business departments, in 25 towns of Kansas and Missouri, including the twin cities situated at old Westport where the mouth of the Kaw River empties into the Missouri River, Kansas City, Kansas and Kansas City, Missouri, this year established a most remarkable gas range sales record in ringing up sales for 1162 units in a 12-day drive preceding Thanksgiving.

The 1938 turkey season push for new range business was the most successful short time campaign of its type ever to be put on in the history of the Gas Service Company.

Supplementing the utility sales effort was a cooperative gas range dealers campaign in which 130 dealers joined in common front attack against buying resistance. These 130 dealers in cooperation with the utility, in areas where Gas Service mains are maintained, succeeded in moving new ranges into the homes of 370 gas users, bring the total sales of the drive to 1532. And after all 1532 feeders for the mains is a mean figure in anybody's gas house, especially when the electric cooking advocates are becoming noisier, if not yet menacing.

Compared with 1937, when national sales in nearly all industries exceeded 1938, and when 1231 ranges were sold by the utility and cooperating dealers in the same type of campaign, the 1938 campaigners deserve the applause of the industry and at least a word of recognition in the industry's journalistic representative, the AMERICAN GAS JOURNAL.

As a matter of record, showing the accumulative effect of established sales plans, the 1936 campaign for Thanksgiving range sales brought to the books a figure of 885 company sales and 270 installations by cooperating dealers.

The dealers introduction into these seasonal endeavors took place in 1936, so the previous year's Turkey Day activity netted 734 units which evidences a mentionable gain over 1934, the year this annual gas range drive was inaugurated, during which exactly 631 new ranges were in place to cook Thanksgiving dinners.

The special Roper model featured, during the 1938 campaign, at a price of $78.50 and "your old stove" was one of the most attractive offers the utility and its dealers have been able to make. This sales price naturally provided salesmen with a tool sufficient in leverage to crack many a hard shell of indecision. Another phase of the campaign, according to campaigners is greatly responsible for the creditable 12-day record; that of offering a free turkey with the purchase of each gas range during the sale. These two features, low price and free turkeys, coupled with an extremely low down payment, 75c, in the hands of inspired salesmen desirous of closing deals, can be written down in your sales plan portfolio for 1939 as important contributing elements in effective movement of merchandise.

All of the range models and makes

..DURING OUR THANKSGIVING
FREE TURKEYS
Gas RANGE SALE
NOV. 10-23
SPECIAL OFFER--THIS $112.00 ROPER GAS RANGE
THIS BEAUTIFUL NEW ROPER OFFERS THESE MANY MODERN FEATURES, AND MORE!
1 Giant Speed Burner
3 Simmer Speed Burners
Air Stream Cooking Top
Automatic Top Lighter
Enameled Burner Tray
Oven Control
Super Insulated Oven
Smokeless Broiler
Timer Alarm
Non-Sag Oven Racks
Two Big Roll Drawers
PUT YOURSELF IN THE OTHER FELLOW'S SHOES
SUBSCRIBE TO THE 1938 CHARITIES CAMPAIGN
DURING OUR THANKSGIVING GAS RANGE SALE
Only $78.50 AND YOUR OLD STOVE
SPECIAL REDUCTIONS ON ALL GAS RANGES DURING THIS SALE
FREE TURKEY WITH EACH GAS RANGE PURCHASED DURING THIS SALE
75c
KANSAS CITY GAS CO.
824 GRAND VI. 9700. 4714 BROADWAY 310 ARMOUR BD.
A CITIES SERVICE COMPANY
COOPERATING IN THIS SALE ARE THE FOLLOWING GAS RANGE DEALERS:
Rockhill Radio & Refrigerator Co.
Moss's
Katz Drug Company
Bunting Hardware Co.
Wyandotte Furniture Co.
Blue Seal Home Appliance Co.
Duff & Repp Furniture Co.
North-Mahoney Furniture Co.
Yost Furniture Co.
Reinen Furniture Co.
Davidsons Furniture Co.
Jones Store Co.
K. C. Stove & Electric Co.
Palmer & Blue
S. E. Lewis & Sons
Sears, Roebuck & Co.
Great Western Home Appliance Co.
Zahner's
THANKSGIVING

One of the Full Page Advertisements Used in Local Newspapers for Thanksgiving Campaign. Note the Listing of Cooperating Dealers.

ONE GAS RANGE HAS EVERY NEWEST REFINEMENT!

Patented "LIFETIME" COOKING CHART

Exclusive Staggered TOP BURNER ARRANGEMENT

"Simmer-Speed" TOP BURNERS AND MANY OTHERS

BIG "3-in-1" Easy-Clean OVEN

"X-RAY" OVEN with ELECTRIC OVEN LIGHT

It's the 1939

ROPER GAS RANGE

Shown above is the New Roper "Sheffield" featuring the Extra-Capacity Handy-High Astogril Roll Broiler

THERE'S A ROPER
for Every Home and Every Purse

Particular customers SHOP gas ranges . . . they compare feature for feature, improvement for improvement. When you show them ROPER for 1939 you'll have "ALL the answers," for this superb line of gas ranges has ALL of the refinements! That's why dealers who feature ROPER this year will find more prospects than ever turned into SALES.

The above features are only a few of the many ROPER refinements. Other developments include "Giant Simmer-Speed" Burner, "Simmer-Speed" Burner, "3-in-1" Oven, "Lifetime" Cooking Chart, Extra-Capacity Handy-High Astogril Roll Broiler, "X-Ray" Oven with Electric Oven Light, "Insta-Flame" Top Lighter, "Insta-Flame" Oven and Broiler Lighter, and "Turret Top." These features help create the all-important ROPER factor of SALABILITY-PLUS!

It's ROPER *Again* FOR 1939

SEND FOR THE COMPLETE STORY ON THE ROPER LINE TODAY

GEO. D. ROPER CORPORATION

GENERAL SALES OFFICE AND PLANT: ROCKFORD, ILL.

WAREHOUSES

Chicago: 343 South Dearborn Street — Atlanta: 901 William Oliver Bldg. — Los Angeles: 2481 Porter Street
Cincinnati, Dallas, Kansas City, Milwaukee, Newark, Boston, Washington, Cleveland, Philadelphia, Roanoke

USE ROPER SALES PROMOTION PLANS

ROPER RANGES ARE IDEAL FOR USE WITH ANY TYPE OF GAS, INCLUDING BOTTLED GAS

Outdoor Poster Shown Preceding and During Campaign.

handled by the utility and dealers, were marked down in price during the sale. However it was the new Roper reduced in price from $112.00 to $78.50, with such features as a giant speed burner, 3 simmer speed burners, air stream cooking top, automatic top lighter, enameled burner tray, unquestionable oven control, super insulated oven, smokeless broiler, timer alarm and two big roll drawers, that, according to sale directors, got the most attention from the public.

The sales campaign was opened with a full page newspaper splash. This was followed by two other full page insertions, a full showing in Kansas City, Missouri, of billboard posters, 200 direct mail pieces sent to the select list of prospects presented to the utility advertising manager, Charles D. Greason, by both the utility salesmen and dealer salesmen throughout the 25 towns served by the Gas Service Company, and dealer and utility floor and window display material including cut-outs of turkeys labeled "free with each gas range during this sale."

An intelligent, economical and extremely effective bit of strategy in the conduct of the campaign is certainly worthy of note by either utility officials or gas appliance dealers. It centered around the awarding of the free turkeys to purchasers of ranges during the duration of the sale. It would have been of little more convenience and not a great deal cheaper to buy an option on a stock of packing house turkeys to be taken out in bulk at the close of the campaign. However the utility officials were wiser and of greater vision than this. They issued merchandise with certificates redeemable in sweet turkey meat at any retail store or market suiting the fancy of the certificate holder. It is clear enough to see that this step immediately added to the goodwill of the range buyer. The many markets and grocery stores throughout the territory were quick in their approval of this plan, and the housewife could lay no blame on the utility for an unsatisfactory fowl, causing any amount of embarrassment and ill will. That one proclamation of policy determining how the housewife shall receive her free turkey is the added touch of smart management that rounds out the circle of successful campaigning.

The following table shows the number of ranges sold in the various Gas Service Company properties, also the number of cooperating dealers, the number sold by the dealers and the total ranges sold in the various cities:

	Sold by Company	No. of Dealers	Dealer Sales	Total Sales
Arkansas City	9	..	..	9
Augusta	6	2	1	7
Beloit Div.	22	..	..	22
Carrollton Div.	5	..	..	5
Carthage	26	..	..	26
Cherryvale	7	2	..	7
El Dorado	26	5	3	29
Fort Scott	10	..	..	10
Hiawatha Div.	16	..	..	16
Hutchinson	59	10	17	76
Independence	33	5	4	37
Joplin	53	..	..	53
Webb City	8	..	..	8
Merriam	21	5	9	30
Monett Div.	21	..	..	21
Newton	17	6	2	19
Ottawa	6	12	9	15
Parsons	27	3	4	21
Pittsburgh	58	6	3	61
St. Joseph	55	..	..	55
Topeka	52	9	28	80
Warrensburg Div.	10	..	..	10
Wichita	129	18	27	156
Kansas City, Mo.	373	21	209	582
Kansas City, Kans.	113	26	54	167
Totals	1162	130	370	1532

Laclede Gas Light Co. Enjoys Big Sales Increase

The sales jinx of January, normally a slow month, after heavy Christmas buying, has been routed by the newly reorganized sales department of Laclede Gas Light Co. of St. Louis, Mo.

Combined appliance sales for the first month of this year reached a total volume of $41,514.43, as compared to $18,632 for January of last year. This is the best January appliance volume the company has had since 1929.

Oregon Air Conditioning Conference

Technical and non-technical phases of air conditioning and exhibits of the latest equipment as displayed by manufacturers will share the spotlight at Oregon's second annual Air Conditioning Conference at Corvallis, March 23 to 25, inclusive, according to general chairman Earl C. Willey, assistant professor of mechanical engineering at Oregon State College.

The conference, sponsored by the College with cooperation from manufacturers of heating, air conditioning, and allied equipment, is held at the school of engineering.

Manufacturers interested in arranging exhibits are requested to get in touch with Earl C. Willey, Oregon State College, Corvallis, Oregon; or Thomas E. Taylor, Consulting Engineer, 510 Southwest 3rd Avenue, Portland, Oregon.

Assisting General Chairman Willey with plans for the 1939 conference are J. Donald Kroeker, Portland consulting engineer, program chairman; J. C. Othus, associate professor of mechanical engineering at Oregon State College, chairman of arrangements; B. W. Farnes of the Control Equipment Company, Portland, attendance chairman; Thomas E. Taylor, exhibits chairman; and A. E. Finlay, Portland Gas & Coke Company heating engineer, publicity chairman.

Booming, Instead of Dooming Sales With the Sales Meeting

By
Arthur Roberts

TOO many sales meetings deter instead of spur. From interviews with sales executives of eastern gas companies and attendance at sales meetings designed to stimulate sales of gas appliances, I have compiled these simple rules, which, if followed, should help make the sales meeting an effective medium for priming the pump to bigger sales.

1:—Plan each sales meeting beforehand in detail. Poorly planned sales meetings are no better than poorly planned merchandising programs.

2:—Prepare a schedule of regular meetings. Don't squeeze them too close together. Not more than one a week. Some executives hold sales meetings every morning. Analysis indicates they do more harm than good. Where sales meetings are held once a week, gas company executives report most favorably on gas appliance sales directly traceable to their salesmen. Don't drag the sales meeting out too long. Two hours is a good limit, say the executives interviewed.

3:—Inspirational stuff is taboo. May have passed muster in the old days but sales executives are unanimous in the contention that nowadays, pep palaver at sales meetings is a bane, not a boon. Preachments anent loyalty, hard work and similar inspirationals, miss fire today.

4:—Play down technical discussion of a product. Play up the reasons why the consumer should buy the product. Many sales meetings are wet blankets because an engineer takes the floor and waxes enthusiastic about the mechanism of a new gadget, forgetting the human angle entirely—and that is the angle from which salesmen sight the most sales. For example, one salesman surfeited with technical information at sales meetings was trying to sell a gas-fired boiler to a wealthy old lady. He talked safety controls, controls, controls because he heard these automatic watch-dogs stressed at sales meetings. Finally, the elderly lady said with justifiable pique, "I believe all you say about the way this thing works, but what I'm interested in is, will it keep an old lady warm?" See that your sales meetings revolve around the reasons nearest and dearest to a prospect's heart for wanting to buy the product.

5:—Don't do all the talking, schoolmaster-like. Plan the meeting so that the salesmen do most of the talking. Experienced sales directors say that often they can learn more from their salesmen than they can teach them. On every sales force there are "spouters" who will hog the meeting with speeches if allowed free rein. Induce them to think more and talk less. Give each man an opportunity to be heard. That makes all take deep personal interest in the meeting because each man feels he is part of it. Avoid formal talks, except on company policy—and they should be few.

6:—Consult salesmen before each meeting for ideas and routine of procedure. Delegate topics for salesmen to talk upon, limiting the time. Offer prizes for good ideas on how to build sales volume or how to overcome specific objections that have been giving the salesmen considerable trouble, such as the "I can't afford it" objection, born of fear in times of business lapses.

7:—Dunk criticism way down under. Do not reproach a salesman in open meeting, even though he deserves it. "Talk turkey" to him privately after the meeting. If criticism is necessary, make it painless and constructive. For example, one sales manager welds the weak spots in salesmen technique by asking for reports on prospects found difficult to close, getting in detail the process of handling in each case. As each salesman lays bare his selling technique, the sales manager asks other salesmen at the meeting if they have had experience with similar prospects and how they handled them successfully. Under this plan, the salesmen criticize each other and often severely, but coming from this source, the criticism is accepted with more grace than when an executive passes out the brickbats. Exchange of views between salesmen is one of the constructive advantages of a sales meeting. Encourage it. A tough prospect for one salesman may be soft picking for another.

8:—Use tact when reporting comparative performances. At some sales

Partlow Temperature Controls

This Gas Oven is equipped with a **Partlow Temperature Recording Controller** which assures correct temperature regulation. Charts tell the complete story of what is going on inside the oven.

The **Partlow Saf-T-Flame Gas Pilot** insures safety by shutting off the entire gas supply instantly in case of Gas or Electric failure.

Modernize with Partlow

The Partlow Corporation

New Hartford (Suburb of Utica), New York

Offices in Principal Cities.

meetings, all the bouquets are thrown to the big-volume producers, whereas, the rear-enders need most attention. The top-notchers can take care of themselves. This is particularly pertinent where rookies are part of the sales force. Discouraging the trailers by always boosting leaders at sales meetings is bad business. Give credit where credit is due but utilize praise more at sales meetings to encourage those behind the leaders. The big-time producer needs encouragement only when he slips into a slump. When he is batting high, his income is sufficient tonic.

9:—Inject a novel feature into each meeting. The same procedure palls. Vary the routine and method of presentation.

10:—Noisy, stuffy rooms decrease the effectiveness of sales meetings. Be sure the room is quiet and well ventilated.

11:—Keep minutes of meetings. If too burdensome to record all details, record only the highlights. Often important for future reference and guidance.

12:—The salesman is primarily interested in how to make more money. That should be the theme of every sales meeting. Build all routine around it. Self-betterment is the goal of all worthwhile salesmen. The "You" appeal, so effective with prospects is equally effective with salesmen at sales meetings.

13:—Follow the clinical method. Breakdown visually and verbally all details of a proposition so that the salesmen can get first hand knowledge of how to overcome objections, how to put over talking points most effectively, how to swing into a fast selling stride with a new model or product, how to conduct selling talks with effect, yet decorum, against competition. Practical instruction, not theoretical hooey, gets best results. Many sales directors call their sales meetings—sales clinics—because modern procedure is more clinical than inspirational.

14:—Dramatize the sales meeting. A blackboard is a dramatic prop. A piece of chalk is an inexpensive medium for focusing and holding attention, also visualizing statements made. A bulletin board helps dramatize discussion. Fasten thereon published and typewritten data touching the proposition and the meeting.

Commercial films touching sales training procured from manufacturers and other sources are used at sales meetings to excellent advantage. They dramatize salesmanship, induce the salesmen to greater effort by weaving love, comedy and tragedy around the selling career with the successful salesman always winning in the end.

Mock sales can be dramatized to afford opportunity for amusement, also serious consideration of effective selling procedure. To get best results, rehearse them.

Dramatization can be injected into the sales meeting in many ways. The sales director who uses his head can dig up inexpensive media to this end.

15:—Avoid formality. Make the general atmosphere of a sales meeting as homelike as possible. It isn't necessary to pass out cigars or refreshments to assure the success of a sales meeting. If the meeting itself offers means for improving selling technique, the salesman will feel amply rewarded for attending. If the meeting offers nothing but empty words, then, neither company nor salesman profit, regardless of how satisfied the inner man.

100 Pounds or More Cut to Medium or Low Pressure

Toggled Reducing Regulator

PRESSURES of 50 to 100 pounds or more in tanks or transmission lines are reduced to medium or low pressure in distribution lines by the Fulton Toggled Reducing Regulator. Can be equipped for accurate control of natural gas, manufactured gas, or by-product gas. For reversing furnaces, constructed with oversize valves. Ask for Circular 2573.

The **CHAPLIN-FULTON MFG. CO.**

28-40 PENN AVE. PITTSBURGH, PA.

Stimulate Water Heater Sales

HOUSEHOLD GAS WATER HEATING

By Charles W. Merriam, Jr.

Nine chapters of the true essence of this subject.

CONTENTS

Engineering ABC's
Water Heater Types
Hot Water—How Much?
Gas Consumption for Water Heating
Water Piping & Installation
What Size Heater
Automatic Heater Accessories
Competitive Water Heating
Hot Water—For What?

"A Book like this has long been needed to enable our salesmen to present a sound and convincing attack on this most worthwhile business of our industry."—A. M. Beebee, Gen. Supt. Gas Dept., Rochester G & E Co., Rochester, N. Y.

"A Real contribution to the gas industry."—R. A. Koehler, Chairman, A.G.A. Water Heating Committee.

Size 5" x 8", 142 Pages amply illustrated. Cloth Bound. Special Close-Out Price $1.00 a Copy.

AMERICAN GAS JOURNAL
53 Park Place New York

A Home Made Unit Heater

Auto Radiator Used in Connection with Gas Burning, Tank Type, Water Heater Provides Space Heating

by

J. H. Dunnewin

Grand Rapids, Mich.

Gas Water Heater, Auto Radiator and Fans Employed as Space Heater. One Side of Cabinet has been Removed to illustrate Details.

Shown in the picture is a rather novel space heating installation used by the author.

It consists essentially of a Graham-Paige automobile radiator, a small gas hot water heater, two electric fans, the necessary piping and a cabinet to house the installation. Before taking the picture one side of the cabinet was removed.

The outlet from the heater coil to the radiator is 2". Returns from both sides of the radiator bottom are carried to the water heater. An overflow is piped from the bottom of heater to a level just above the vent valve in the top of the radiator. The loss of water by evaporation is made up by occasional addition through the overflow. The overflow also takes care of any extreme pressure. (Editor's Note: An expansion tank, similar to that used on hot water heating systems, would seem to have advantages over the overflow arrangement described).

Circulation is by "thermo syphon" action, the principle being the same as that used on the old Model "T" Ford cars. The outlet line from the water heater to the radiator is covered with asbestos so as to give a higher temperature at the radiator top and thus promote circulation.

There are two 8" electric fans. These are used only when it is desired to speed up circulation when starting the heater, after which one is turned off. After room temperature is once attained the gas is turned low and a resistance is cut in on the one fan, causing it to run half speed. Only in severe weather is it necessary to run the fan full speed, and even then it is not necessary to have the gas turned on all the time. A recent installation of an electric lighter makes it convenient to turn the gas off and on. One further improvement would be thermostatic regulation.

This installation heats three rooms (small ones), and the author was told by the investigator from the Gas Company, that he had the distinction of being next to the lowest consumer on the heating schedule rate.

This system has been in service the last two winters and is a big improvement over other methods used prior to that time.

Gas Men Plan Meeting Place at New York World's Fair

Members of the gas industry will have a meeting place of their own at the New York World's Fair. For this an organization to be known as The Court of Flame, Inc., has been formed. The announcement came from the group's national headquarters, 60 East 42nd Street, New York.

A separate section of the gas industry's "Court of Flame" exhibit group at the World's Fair has been set aside for the exclusive use of this organization. A second floor lounge with a wide terrace overlooking the exposition grounds will offer facilities for business meetings, social functions, and informal "get-togethers" for men of the industry.

Membership will be open to all executives and employees of gas companies and manufacturers of gas appliances and equipment participating in the Gas Industries Exhibit.

GPM
IRON HYDROXIDE

→ **Activity unimpaired at 22° below in Maine to 110° in Florida.**

→ **Lowest cost per pound of sulphur removed.**

→ ***1,500,000 bushels repeat orders in 1938 is the best guarantee of a dependable oxide.***

GAS PURIFYING MATERIALS CO. INC., LONG ISLAND CITY, N. Y. AND PROVIDENCE, R. I.

Book Reviews

The Orifice Meter by Allen D. MacLean, Chief Engineer of Pittsburgh Equitable Meter Company. 146 pages, 5" x 8", with numerous illustrations, diagrams and charts.

Pittsburgh Equitable Meter Company, Pittsburgh, Penna., has announced the publication of a new handbook entitled, "The Orifice Meter." Included in its ten chapters is a complete story on measurement by orifice meters. The theory and mathematics necessary to better understand the principles involved, together with equations and tables to accomplish the measurement of any normal gas or liquid, are included. Copies of the Orifice Meter Handbook, at $2.00 each, can be secured by writing the Pittsburgh Equitable Meter Company at 400 N. Lexington Ave., Pittsburgh, Pa.

Cases on Public Utility Regulation by Irston R. Barnes of Yale University. F. S. Crofts & Co., New York, 1938. 1008 pages. Price $7.00.

This work is a by-product of eight years' experience in teaching public utility regulation to undergraduate students majoring in economics.

One hundred and sixty-two cases bearing on public utility regulation are fully presented in all their essential parts, together with many dissenting opinions. Full introductory notes on the regulatory problems involved are included, as well as cross-references, reading lists, and an index of subject matter and cases.

The selected cases are divided about equally between the opinions of the United States Supreme Court and the decisions of the lower courts and commissions.

An introductory note at the beginning of each chapter presents the nature of the regulatory problems under consideration and their relation to other phases of utility regulation. These notes are intended to give a measure of coherence to the book and to enable the student to approach the following cases with a more intelligent understanding of their significance. No attempt has been made to summarize the decisions or to interpret them. For convenience each chapter contains references to parallel readings in the commonly available texts and treatises.

The Chemical Formulary, Volume IV by H. Bennett. The Chemical Publishing Company of New York, Inc., 1939. 638 pages. Price $6.00.

A condensed collection of new valuable, timely, modern practical formulae for making thousands of products in all fields of industry. Covered in this book are formulae for Rubber & Latex, Adhesives, Polishes, Lubricants, Drugs, Farm & Garden, Specialties, Cements & Concrete, Resins, Synthetic Resins, Plating, Pyrotechnics, Solders, Welding, Insecticides, Pharmaceuticals, Oils & Fats, Liquors, Dyeing & Coloring, Fluxes, Explosives, Paints, Lacquers, Varnishes, Leather, Skins, Furs, Automobile Specialties, Removing Stains, Bleaches, Ceramics, Deodorants, Disinfectants, Laundry Specialties, Dental Products, Etching, Fireproofing, Animal Remedies, Boiler Compounds, Glass, Textiles, Fibres, Beverages, Flavors, Rustproofing, Metal Treatments, Food Products, Enamels, Cosmetics, Inks, Marking Compositions, Soaps, Cleaners, Waterproofing, Metals, Alloys, Pastes, Glues, Fireworks, Waxes, Mildew Proofing and Chemical Specialties.

Western Conference of P.U.A.A.

The first mid-year meeting of the Public Utilities Advertising Asso. was held at Kansas City, Mo., Jan. 21. Howard F. Weeks, President, presided, and Mayor T. J. Strickler, vice president and general manager, Kansas City Gas Co., gave the address of welcome to the delegates. Mr. Weeks outlined the objectives for 1939. He stated that the regular activities, such as better copy contest and advertising exchange service would be continued as well as an intensive membership campaign. This first mid-year meeting was so successful that the opinion was it should be an annual event. The committee in charge of arrangements consisted of R. T. Ratliff, C. D. Greason, R. I. Seymour, R. D. Lewis, F. R. Jamison, Al Woods and C. Ashley.

New Homes Use Gas Heat

During the years of 1937 and 1938 a total of 106 new homes were constructed in St. Joseph, Mo. Of this number gas fired furnaces were installed in sixty-eight. In 1937 forty-two new homes were constructed of which twenty-three installed gas fired furnaces. This percentage jumped in 1938 when forty-five out of sixty-four new homes were equipped with gas furnaces, or a total of 64 per cent of the new homes in St. Joseph have installed gas furnaces.

Residential building in Wichita, Kansas, is still booming. Some twenty new houses are being built in the moderate priced field in the new Schweiter section of the city.

J. S. Kennedy

James Stanislaus Kennedy, engineer in the office of the vice-president in charge of gas operations of the Consolidated Edison Company in New York, died February 13th after a long illness. He was sixty-five years old.

Mr. Kennedy was born in Dublin, Ireland. He came here when he was twenty years old and went to work for the Standard Gas Light Company, of which he later became superintendent. He had been with Consolidated Edison system companies for forty-five years. He was best known in the industry as inventor of the Kennedy telemetric gauge for distant recording of pressures in gas mains and the Kennedy automatic control for operation of water gas machines.

IT will pay you to ASK about the KITSON L.T.P.-103 VALVE

TEMPERATURE LIMITATION *essential for absolute* EMERGENCY PROTECTION! . . . .

Write— KITSON COMPANY 2409-15 Westmoreland St. Philadelphia, Pa.

GAS SERVICE STOPS

SINCE 1869 Hays has built dependable brass products for the Gas Industry. Standard, Special Weight, Heavy Pattern and High Pressure Stops to meet all requirements are manufactured by Hays in a full range of sizes. Write for Catalog No. 4 today.

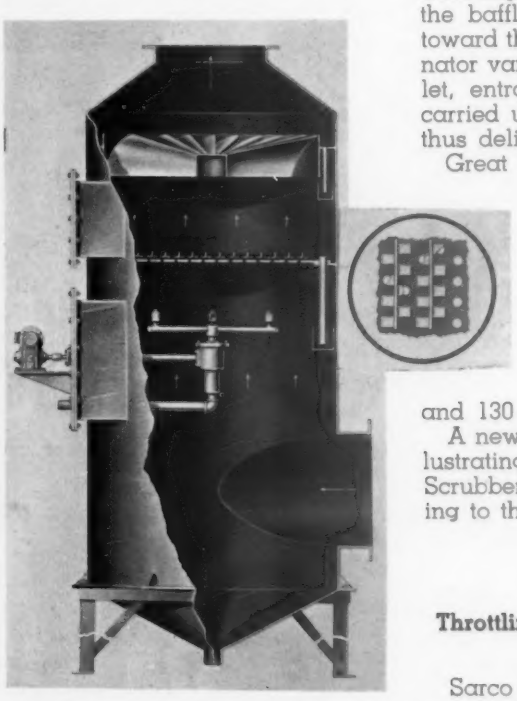
HAYS MANUFACTURING CO. ERIE, PA.

New Equipment

New Triple Action Scrubber

The Peabody Engineering Corporation, 580 5th Avenue, New York, announces the development of a new model scrubber for the removal of fog, dust and other particles from gas and air. It is a simplified, perfected adaptation of the scrubbing principles which characterize the company's various designs.

The new model is known as the Peabody Triple Action Scrubber, the separation of impurities being a three step process. Gas enters tangentially near the base of the scrubber and is there relieved of coarse particles by cyclonic action. The gas passes upward through a zone of water or scrubbing liquid, supplied by slowly rotating sprays, operating at only 10 to 15 pounds pressure. Dust particles mingle with water droplets at this stage. Continuing its travel, the gas encounters a plate with coarse perforations. On passing through these, the velocity of the gas is greatly increased and with it the velocity of the dust and water droplets.



The mixture of gas, dust and droplets is shot through the plate perforations directly at square impingement baffles, constantly wet, arranged so that the stream coming through each plate perforation strikes its individual baffle at maximum velocity. The dust particles and water droplets, on impact with the wetted baffle merge with the water surrounding the baffle. At this point, the real and final cleaning takes place. The dust particles hit the baffle with the directness of point blank rifle fire and upon doing so, are effectively and permanently captured in the scrubbing liquid.

A liquid overflow pipe, located slightly above the level of the baffles, carries off the dust laden water, which leaves at the bottom of the scrubber shell. The gas or air, freed from impurities, is deflected around the baffles and continues upward toward the outlet of the shell. Eliminator vanes, located below the outlet, entrap any droplets of water carried upward in the gas stream, thus delivering dry gas.

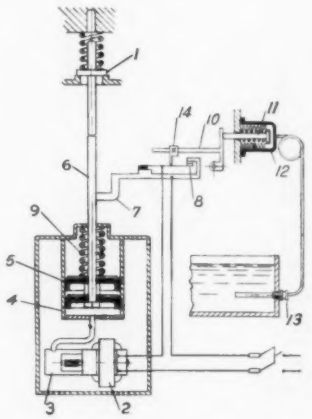
Great efficiency is obtained in small sized scrubbing units. An interesting comparison is provided by a Peabody scrubber 4 feet in diameter and 6 feet in height, doing the same cleaning job as a packed tower double the diameter and 130 feet high.

A new bulletin describing and illustrating the Peabody Triple Action Scrubber may be obtained by writing to the company.

Throttling Control for Industrial Gas Burners

Sarco Company, Inc., 183 Madison Avenue, New York, announce the addition to their line of temperature controlling equipment of the new self-contained, electrically operated instrument illustrated. It is known as their type SE, and intended for accurate throttling control of industrial gas burners, as used on dryers, ovens, water heaters, heat exchangers, and other gas fired equipment.

It is suitable for temperatures from minus 40°F. to plus 650°F., and is said to provide control within



1°F. regardless of size of the valve. Contrasted with other gas burner controls, this valve is of the truly throttling type, adjusting itself to any position between wide open and closed, not simply open and shut or high-low. The amount of valve travel per degree of temperature change is adjustable by the user, by sliding finger 14 on arm 10. It is thus possible to synchronize the control with the heat cycle of the controlled apparatus. This prevents hunting of the valve.

It is operated directly from the lighting circuit, consuming less than 50 watts of A.C. current.

New Calorimeter

The complete redesign and improvement of its gas calorimeter is announced by Cutler-Hammer, Inc., 202 North 12th Street, Milwaukee, Wis.

It consists of a tank unit which continuously determines the calorific value of gas, and a recording unit that indicates this value immediately, continuously and permanently in terms of B.t.u.'s on a highly visible 30-day chart.

According to Cutler-Hammer gas engineers, major improvements in the tank unit result in increased speed and accuracy of response because the gas, through better "purging," reaches the combustion chamber more quickly. Longer service is claimed, as all underwater

and Appliances

parts are made of brass which do not require painting; idler gears have been eliminated and wearing parts reduced 40%; the motor is direct-connected with gear trains rigidly aligned on a supporting trunnion; oilless bearings are used on all slow-moving parts; pump and overflow weirs are non-clogging; the products of combustion are discharged outside of the tank, and inbuilt water treatment prevents biological growths.

The manufacturers also claim design and construction refinements for the recording unit with its new suppressed-zero record chart which makes variations appear greatly enlarged for greater accuracy and control of adjustments, eye-level visibility, both momentary and permanent readings, the addition of a metal plate behind the chart for ease of making notes on the chart and dating it, synchronous motor chart drive, large ink supply, and greater accessibility, because the entire mechanism swings out for easy inspection.

Both tank and recording units of the new Calorimeter are Cutler-Hammer "airstyled" for neater, better appearance.

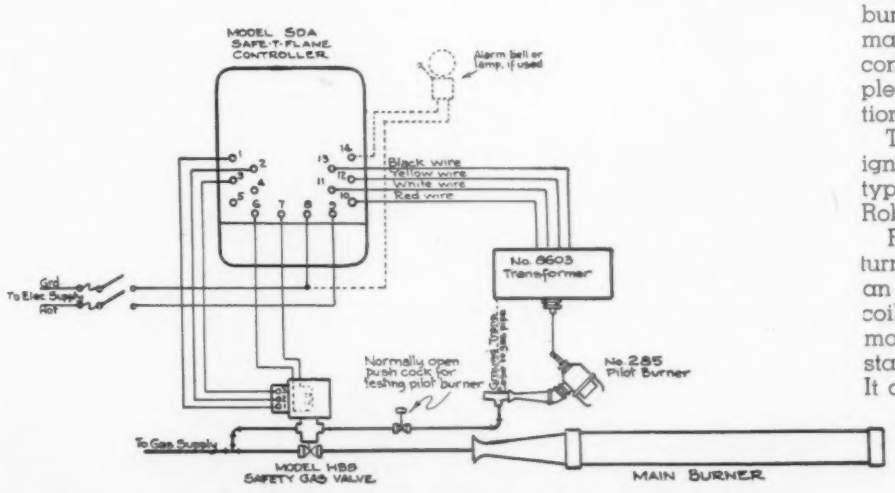
Saf-T-Flame Gas Pilot

Adaptable to any kind of fully automatic control application, the Partlow Saf-T-Flame gas pilot is designed to protect any gas or oil-fired appliance using a gas pilot, against the damage which might result by the failure of the pilot.

It operates on the flame conductivity principle, by using the property of a gas flame which makes it a better electrical conductor than air. By placing suitable electrodes in the pilot gas flame, a small electric current will flow across the pilot flame and will cease when the pilot flame is extinguished. This electric current is used to operate through a relay to control electrically operated valves in the fuel line. Thus when the pilot is extinguished, the entire fuel supply is instantly cut off. Since it does not depend upon the heat generated by the pilot for its operation, there is no delay in its function; the action is instantaneous.

To put the pilot in operation, push the button on the front of the case. This raises the voltage on the electrodes to the sparking point and at the same time opens the pilot solenoid valve. When the pilot has lighted, release the button which restores the voltage to its original lower value and cuts in the relays which close allowing fuel to flow to the burners. Failure of the pilot will allow no current to flow across the electrodes. This causes the relays to drop out and close the fuel valves. If the electrodes or the high tension cable supplying them should become grounded, the relays will drop out and cut off the fuel supply. Thus protection is provided against pilot extinguishment, gas failure, electrical failure and accidental damage to electrodes or cable.

Full description showing applications in Bulletin 750 of The Partlow Corporation, New Hartford, (suburb of Utica) New York.

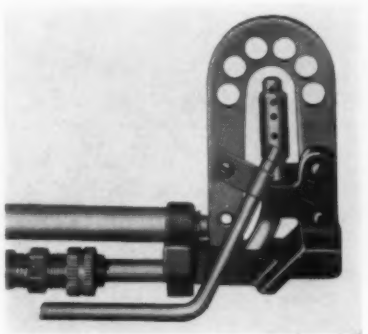


Manual operation with Model H.B.S. Safety Gas Valve.

Bryant "Powerstat" Controls

The Bryant Heater Company of Cleveland announce in bulletin SA-3030 three new models of lighters for automatic oven controls.

The Cycle Gas Lighter shown in the cut maintains a small constant gas burning pilot which ignites the



actuating pilot whenever the oven burner valve is opened for use. This makes possible a minimum gas consumption and still provides complete automatic oven lighter operation.

The bulletin also shows electric ignition and constant burning pilot types. All three types employ the Roberts "Powerstat" lighter.

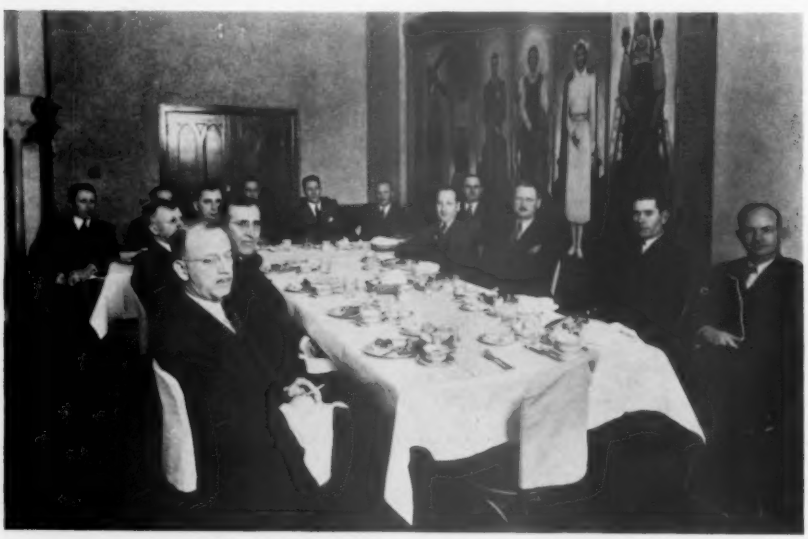
For electric ignition model, the turning of the valve handle operates an enclosed and protected lighter coil. In the constant burning pilot model the pilot holds the powerstat in an open position at all times. It closes in 20 seconds if main gas or pilot supply fails.

News of the Industry

Gas Measurement Short Course

The Executive Committee of the Southwestern Gas Measurement Short Course met recently at the University of Oklahoma, in Norman, Oklahoma, to make definite plans for the 1939 School.

L. G. Rheinberger, Sinclair Prairie Oil Company, Tulsa, Oklahoma, who is General Chairman of this Committee, presided during the morning session, and Fay C. Walters, Panhandle Eastern Pipe Line Company, Kansas City, Missouri, Chairman of the Program Committee, presided in the afternoon.



Executive Committee, Southwestern Gas Measurement Short Course

Left to Right around table: J. H. Satterwhite, G. B. Lane, C. A. Gibson, Gilbert Estill, R. L. Rountree, J. H. Page, Fay C. Walters, L. G. Rheinberger, Dean W. H. Carson, D. A. Sillers, W. R. McLaughlin, Max K. Watson, Earl Kightlinger and R. M. Scofield. Miss Kate A. Niblack attended the Executive Session, but was unable to be present at time picture was taken at the Committee Luncheon, held in the English Room, Student Union Building, University of Oklahoma Campus.

The dates for this year's Short Course were set for April 18, 19 and 20, 1939.

Other members of the Executive Committee are: Dean W. H. Carson, University of Oklahoma, Norman, Oklahoma, Chairman of Banquet, Entertainment and Local Arrangements Committee; R. D. Hanley, Magnolia Petroleum Company, Dallas, Texas, Chairman Publications Committee; R. L. Rountree, United Gas Pipe Line Company, Houston, Texas, Chairman Exhibits Committee; Earl Kightlinger, Arkansas-Louisiana Gas Company, Shreveport, Louisiana, Chairman of Practical Methods Committee; and Miss Kate A. Niblack, Oklahoma Utilities Association, Oklahoma City, Chairman of Registration and Publicity Committee.

Other Committee Members are: E. M. Myers, Oklahoma Corporation Commission, Oklahoma City; J. H. Page, Kansas Corporation Commission, Wichita, Kansas; E. H. Poe, Secretary of Natural Gas Section of the American Gas Association, New York City; William F. Lowe, Secretary Natural Gasoline Association of America, Tulsa, Oklahoma; J. H. Satterwhite, American Meter Company, Tulsa, Oklahoma; W. R. McLaughlin, Pittsburgh Equitable Meter Company, Dallas, Texas; G. B. Lane, The Foxboro Company, Dallas, Texas; Max K. Watson, Canadian River Gas Company, Amarillo, Texas; C. A. Gibson, Cities Service Gas Company, Bartlesville, Oklahoma; G. W. McCullough, Phillips Petroleum Company, Bartlesville, Oklahoma, and R. M. Scofield, Lone Star Gas Company, Dallas, Texas.

The next meeting of the General Committee will be held in Tulsa, Oklahoma, on March 13, when Mr. Walters will present the program for approval.

Montreal Power to Conclude Deal With Customers

Announcement was made recently by Montreal Light Heat & Power Consolidated that the Three Per Cent Convertible Debentures issued to customers of the Company in 1932 will be retired on their maturity date July 1 next. At the same time, John S. Norris, president of the Company, stated that an effort is being made to work out a plan whereby the objectives of this customer-company mutualization may be continued after the maturity of the debentures.

The redemption of the debentures six months hence will conclude one of the most interesting and successful customer financing efforts ever undertaken by a utility. It will be the final step in a deal made in June 1930 between the Company and close to 25 per cent of its customers. At that date no less than 57,000 of the customers accepted an offer to subscribe to Montreal Power stock at an attractive price and on easy installments.

Early during the subscription period, the increasing severity of the depression affected the price of prime securities throughout the world. In order to relieve its customers from some of their financial anxieties, the Company extended to these customer-subscribers its entire resources, and dollar for dollar issued to them the 3 per cent debentures, which were backed by the full credit of the Company, instead of the common stock provided in the orginial offer.

Because the Company thus voluntarily guaranteed them against loss, customer holders of these debentures next July will receive in full every dollar, which they originally invested and in the meantime they will have received regular interest payments.

Davey Elected Director Wisconsin P.S. Corpn.

J. P. Pulliam, president, Wisconsin Public Service Corporation, announced the election of A. F. Davey, Sheboygan, as director of the company to fill the vacancy caused by the resignation of H. C. Cummins of Minneapolis.

Mr. Davey is manager of the Sheboygan-Manitowoc Division and began work with Wisconsin Public Service Corporation February 1, 1912, as superintendent of production in the Green Bay gas plant.

In addition to his duties at Sheboygan, Mr. Davey is in charge of operations in the Manitowoc Division and acts as advisor in technical problems at all gas plants in the company.

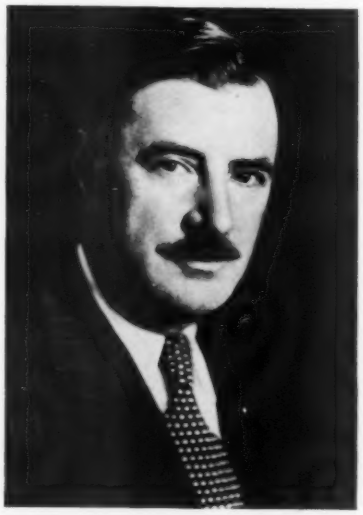
Mr. Cummins was recently elected vice-president in charge of operation of Northern States Power Company at Minneapolis.

Servel Directors Re-elected

At the Annual Meeting of Stockholders of Servel, Inc. held at Dover, Delaware, on February 23, the following directors were re-elected: Murray H. Coggeshall, Elon V. Ekman, William V. Griffin, Charles G. Groff, Richard C. Hunt, Hunter S. Marston, Louis Ruthenburg.

A. S. H. V. E. Elects McIntire

J. F. McIntire, of Detroit, newly elected President of the American Society of Heating and Ventilating Engineers, who was chosen to succeed E. H. Gurney of Toronto, at the annual meeting of the Society held in Pittsburgh in January.



J. F. McINTIRE

Mr. McIntire is Vice-President of the United States Radiator Corporation and has been active in the affairs of the A.S.H.V.E. for more than 10 years. Mr. McIntire is a native of Illinois and a graduate of the University of Illinois. He is one of the outstanding personalities in the heating industry.

Appalachian Meter School Proceedings Published

The Proceedings on the First Annual Appalachian Gas Measurement Short Course have been printed in book form and are now ready for distribution. The school, the first of its kind in the eastern United States and the third in the country at large, was held August 22, 23 and 24, 1938, at the University of West Virginia. It was jointly sponsored by the University and the Public Service Commission of West Virginia, with H. J. Wagner of the Commission serving as Chairman of the Meter School Committee.

Over 300 representatives from the utilities, manufacturers and gas producers in twelve states attended. The success of the first school was gratifying to the sponsors who have announced dates of August 21, 22 and 23 for this year's meeting.

The Proceedings of the 1938 meeting cover papers read and discussed on the general theme, "Theory and Practice of the Measurement of Gases." All those who registered at the school have been given copies of this bulletin. It is felt that this book would make a valuable addition to any gas man's library and additional copies can be obtained, while the supply lasts, at $1.00 a copy by writing to Mr. G. R. Spindler, Director of the School, West Virginia University, Morgantown, West Virginia.

Water Heater Campaign Portfolio Offered by A.G.A.E.M.

A new sales "portfolio," guaranteed to put punch into the 1939 Gas Water Heater Campaign and boost gas water heater sales to record proportions for utility companies and retail dealers, has just been released by the Association of Gas Appliance and Equipment Manufacturers, sponsor of the current, nation-wide water heater campaign.

The attractively prepared sales book, which has been mailed to sales managers of gas companies throughout the country gives details on the two prize essay contests which are being staged in connection with the campaign.

The sales portfolio contains colorful and dramatic sales suggestions for tie-in with the water heater advertising campaigns and promotional work of the local gas companies. These, it is pointed out, will enable them to bring the story of the Automatic Gas Water Heater—"Your Twenty-four Hour Servant"—more vividly and forcefully before potential buyers in their own territories—and to boost 1939 gas water heater sales—and the gas load—to a new high.

The theme song of the sales book's promotional material is: Every home needs hot water 150 times a day—and the Automatic Gas Water Heater—"the twenty-four hour servant"—supplies it!

The sales aids suggested to put this message over include colorful mailing pieces, window displays, bill enclosures, sheet posters, and car cards, photographic service, newspaper ads, publicity releases for the news columns of local papers; radio spot announcements, novelties, and salesmen's contests.

All this sales promotional material may be obtained at very reasonable cost, because, it is pointed out, "production cost has been absorbed."

An essay contest for utility companies with cash awards of $1,000 is open to all employees in those companies, from gas fitter and officer, on up to executives. The topic for this contest is: "The Value of the Water Heating Load, and How It May Be Secured."

The essay contest for retail plumber dealers with cash awards of $1,000 has as its subject: "What the Promotion of Automatic Gas Water Heaters Has Done for My Business."

The contest essays are expected to yield a variety of valuable information on the merchandising of gas appliances generally, as well as water heaters. Architects and builders are to receive an up-to-date "Architects Manual on Gas Water Heating," prepared by a well-known architect.

Wailes Dove-Hermiston Appointments

Julio F. Sorzano, Industrial Sales Manager of Wailes Dove-Hermiston Corporation of New York City, announces the appointment, as distributors of Bitumastic protective coatings, of Brance-Krachy Company, Houston, Texas; R. W. Hudgins & Son, Norfolk, Va.; The James Walker Company, Baltimore; and Industries Supply Company, San Diego, Calif.

CONVENTION CALENDAR

March

8-10 *International Acetylene Assn.* Rice Hotel, Houston, *Texas.*

13-14 *Wisconsin Utilities Assn.-Gas Division,* Pfister Hotel, Milwaukee, Wis.

19-24 *Southern Gas Association.* On board S. S. Rotterdam sailing New Orleans to Havana, Cuba, and return.

20-21 *Oklahoma Utilities Assn.,* Tulsa, Okla.

27-28 *American Gas Assn.* Conference on Industrial Gas Sales. Hotel Statler, Cleveland, Ohio.

April

10-12 *Mid-West Gas Association,* Des Moines, Ia.

12-14 *Missouri Association of Public Utilities.* Annual Convention.

17-19 *American Gas Association,* Distribution Conference—Technical Section, Palmer House, Chicago.

May

2-4 *Pennsylvania Gas Association,* Annual Meeting, Sky Top Club, Sky Top, Pa. Secretary, Frank W. Lesley, Penna. Gas & Electric Co., York, Pa.

8-9 *Indiana Gas Assn.* 29th Annual Convention, Ft. Wayne, Ind.

8-11 *American Gas Association.* Natural Gas Section, Tulsa, Okla.

15-17 *American Gas Assn.* Joint Production and Chemical Committee Conferences, — Technical Section, Rochester, N. Y.

24-26 *Assn. Gas Appl. & Equipt. Mfrs.* Roosevelt Hotel, New York, N. Y.

June

6-7 *Canadian Gas Association,* Annual Convention, Royal Connaught Hotel, Hamilton, Ont. Secy-Treas. G. W. Allen, 7 Astley Ave., Toronto 5, Ont.

9 *Empire State Gas & Electric Assn.* Group Meeting (Gas Operating) Tower Club, Park Central Hotel, New York.

29-30 *Michigan Gas Assn.* Annual Convention, Grand Hotel, Mackinac Island, including July 1.

September

4-9 *Pacific Coast Gas Assn.* Fairmont Hotel, San Francisco.

9 *Gas Industry Day,*—Golden Gate Exposition.

October

9 *Gas Industry Day,* — New York World's Fair.

9-12 *American Gas Assn.* Annual Convention, New York, N. Y.

A Complete and Authoritative Treatise on this Vital Subject—

PIPE CORROSION and COATINGS

by

Erick Larson

Past Chairman of American Gas Association Distribution Committee; Author of articles on High Pressure Distribution and Regulator Structures.

Written in plain understandable language for practical men

Fully illustrated with many diagrams, charts, and photos. A general outline of the subjects covered is given in the chapter titles.

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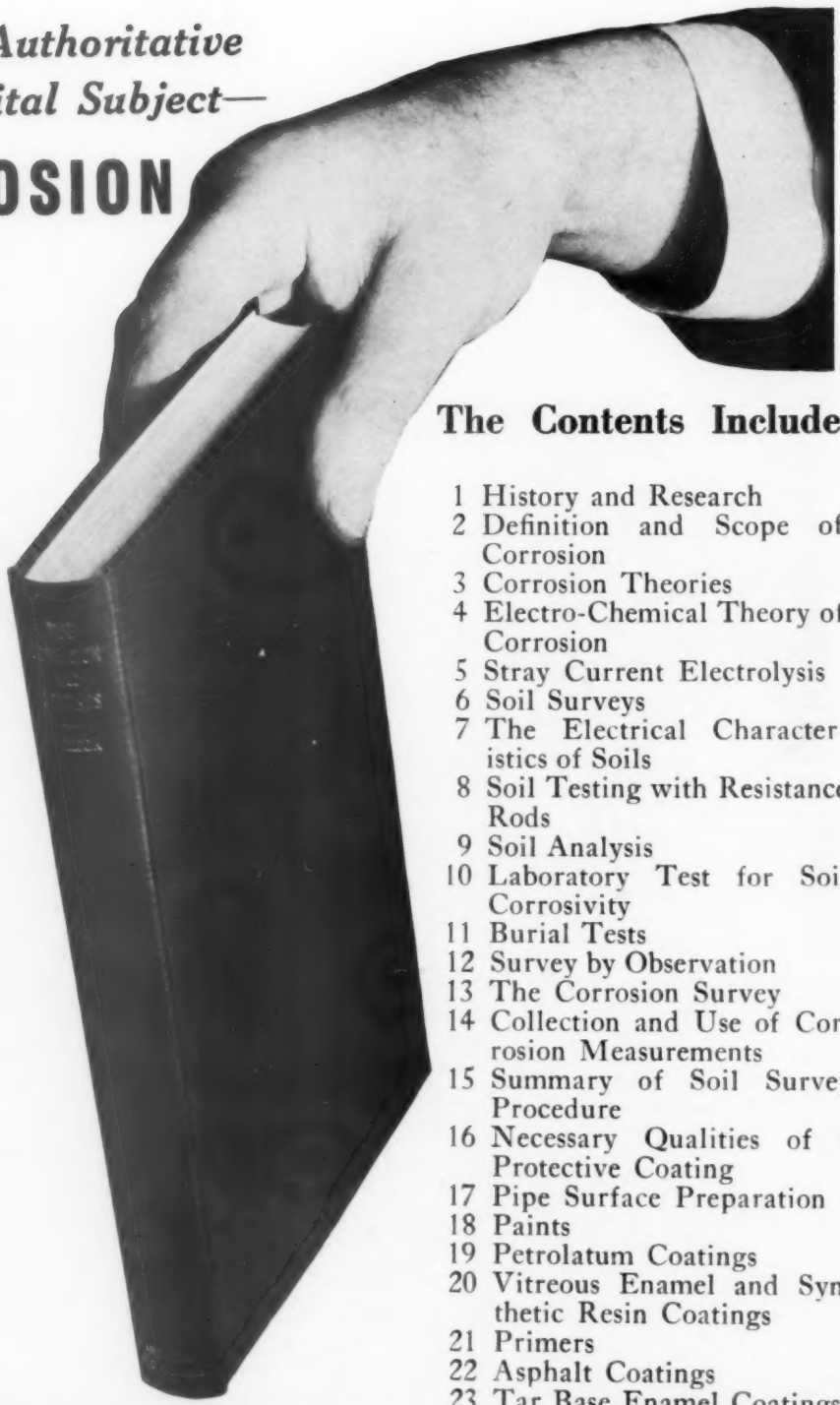


The Contents Include

1 History and Research
2 Definition and Scope of Corrosion
3 Corrosion Theories
4 Electro-Chemical Theory of Corrosion
5 Stray Current Electrolysis
6 Soil Surveys
7 The Electrical Characteristics of Soils
8 Soil Testing with Resistance Rods
9 Soil Analysis
10 Laboratory Test for Soil Corrosivity
11 Burial Tests
12 Survey by Observation
13 The Corrosion Survey
14 Collection and Use of Corrosion Measurements
15 Summary of Soil Survey Procedure
16 Necessary Qualities of a Protective Coating
17 Pipe Surface Preparation
18 Paints
19 Petrolatum Coatings
20 Vitreous Enamel and Synthetic Resin Coatings
21 Primers
22 Asphalt Coatings
23 Tar Base Enamel Coatings
24 Practical Considerations in Application of Primers, Coatings &c.
25 Pipe Coating Fillers
26 Pipe Coating Shields
27 Cement Coatings
28 Cathodic Protection.

American Gas Journal, 53 Park Place, New York
Book Department

Please send ..... Copy ..... of
"Pipe Corrosion and Coatings" by Erick Larson

Name .....

Address .....

City .....State .....

☐ Send Bill ☐ Remittance Herewith

This Coupon with Company Purchase Order requires no remittance in advance.

A.G.A.E.M. Selects A. F. Cook To Aid in "CP" Promotion

A. F. Cook has been appointed advertising manager of the Association of Gas Appliance and Equipment Manufacturers and will assist in the promotion of the "CP" Gas Range Program, it was announced from the national headquarters of the Association in New York.

Mr. Cook's experience will qualify him for this newly created position. For nearly the past ten years, he was assistant advertising manager of the Philgas Department of the Phillips Petroleum Co., of Detroit, Mich., marketers of liquefied petroleum gases for bottled gases and other purposes. In this capacity he acquired a practical knowledge of gas, its uses, and of gas burning appliances. Prior to his association with the Phillips company, Mr. Cook's experience included newspaper, advertising agency, and sales promotion activities.

A. F. COOK

Mr. Cook's appointment with the Association of Gas Appliance and Equipment Manufacturers becomes effective immediately.

Sales Plan Book on CP Ranges

Eye-compelling, sales-compelling suggestions for the Spring Campaign of the "CP" gas ranges are contained in the Sales Plan Book just released to 12,000 dealers and 2,000 leaders in the gas industry.

The book contains a complete merchandising plan for a Spring Campaign, which is the first of four to be projected in the nationwide promotion of the "CP" gas range during 1939 under the auspices of the Association of Gas Appliance and Equipment Manufacturers' domestic gas range sales management committee. The Spring Campaign covers the months of April, May and June; the other three campaigns planned are: Summer Campaign (July, August); Fall Campaign (September, October); and Holiday Campaign (November, December).

The literature is presented from "the merchants' point of view," embodying ideas from leading merchandisers of "CP" gas ranges in all parts of the country who were quizzed for specific suggestions on an effective 1939 program.

The three "pockets" in the portfolio are filled with vivid and practical literature—4-color bill enclosures, rotogravure bill enclosures and direct mail pieces, show room banners, de luxe 4-color mailing pieces, news releases, newspaper advertisements, radio spot announcements, and a 4-page folder offering display and sales helps. These take in a sound slide film, window display, "CP" Sales-Maker, and a Floor Demonstrator.

Much is made of the "mammoth selling opportunity" which lies ahead for appliance outlets in replacing the 9,000,000 old, antiquated stoves which need immediate replacement in that many homes. Twenty valuable suggestions for effecting the necessary dealer cooperation in order to accomplish this "job" are given.

Elaborate announcement is given to the "CP Ranger Club," an organization for "CP" gas range salesmen from coast to coast, to provide "uniform high standards of selling performance—and national recognition for outstanding achievement."

Rules and awards for this Club, which is open to everyone engaged in the sale of "CP" ranges, are fully described in the folder given over to this particular feature of the "CP" promotional campaign.

The "CP Ranger Club" is hailed as "one of the most effective sales stimulants" the utility company and dealer can employ during 1939, providing as it will, a clearing house for effective sales ideas and methods for the sale of more "CP" gas ranges.

Natural Gas Accountants Association

The Natural Gas Accountants Association of Oklahoma held a meeting February 24th in Tulsa. There were present fifty-five representatives of the various gas companies throughout the State, the largest attendance ever had at any of their meetings.

Papers were presented as follows: "Fixed Property Records," by O. E. McMannis, Consolidated Gas Utilities Corp.; "Fixed Capital Records, Their Uses and Advantages," by F. V. Fitzwater, Oklahoma Natural Gas Company; "Units of Property Records," by W. Smith, Central States Power & Light Corporation.

The next meeting of the Association is to be held in Oklahoma City, April 28th.

"Rigging Up" Gas Refrigerator Contest

March of this year will be remembered as a month of favorable winds by the 197 gas appliance salesmen in various parts of the country who are eligible for the $2,250 in cash awards to be distributed to successful contestants in the "Rigging Up" contest for the retail sale of gas refrigerators which began on the first of this month to last until the 31st. The "Rigging Up" drive is the first leg of the annual Spring and Summer gas refrigeration selling contest which is to be known this year as the "Man-the-Sales" campaign, the main portion of which will extend throughout April, May and June. March winners will be sales employees of the utilities that have signed up for the contest.

The campaign is to be conducted, as hitherto, by the American Gas Association Refrigeration Committee. The contest in which approximately $30,000 in all will go to top salesmen during the five-month drive is sponsored by Servel, Inc., through the Association of Gas Appliance and Equipment Manufacturers. Following the practice of many years, trophies will be awarded to winning companies, the trophy chosen this year being a model of the "Flying Cloud," the famous clipper ship which made speed records in voyages around the Horn in the fifties.

The "Rigging Up" contest has been staged as a preliminary selling campaign in which sales employees of the gas utilities that have entered the campaign will be given a chance to "get their sea legs" before the big April-May-June drive is launched, according to an announcement sent to all sales managers of utilities inviting them to join. "Remember that leads battened down in March will mean extra awards at once," the announcement stated. And every prize won by your crew on this maiden voyage will inspire every man-jack to greater efforts in the big three-month race for both companies and men."

Awards will be distributed in the following order:

A total of $550 will go to winning salesmen in Division 1, which comprises eleven large utilities in New York City, Brooklyn, Westchester County (New York), Los Angeles, Chicago, Philadelphia, Washington, D. C., Boston and Detroit. In this division, 33 prizes will be distributed, $25 going to the top salesman in each company, $15 to the second highest and $10 to the third man.

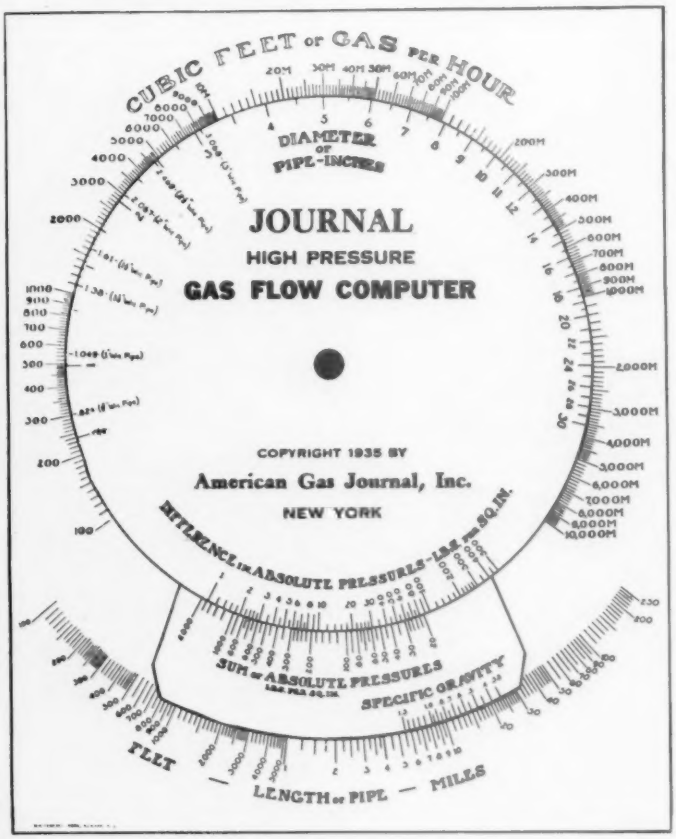
In Division 2 (companies having a rate of 12 cents per therm and 30,001 meters or more), $525 will be distributed to 51 persons, the salesman who is first to receive $25, and $10 each going to the next 50 leading men.

In Divisions 3, 4 and 5, the awards for each division will total $325 to be divided into 31 prizes in each division, top men receiving $25 each, with $10 each going to the next 30 leading men. (Division 3 comprises companies having from 3,001 to 30,000 meters; companies in Division 4 have 9,001 or more meters, and companies in Division 5 have from 3,001 to 9,000 meters. The 12 cents per therm rate is the same for all three divisions.)

In Division 6 (companies having 3,000 meters or less, regardless of the rate per therm) $200 in awards has been allotted to 20 men making the highest total sales, or $10 for each winner.

The awards are based on installations of Servel Electrolux refrigerators. In the case of ties the prizes will be duplicated.

"Journal" Gas Flow Computers



New Improved Gas Flow Computers now available of durable celluloid, encased in a convenient leatherette cover with complete instructions.

Actual Size 6¼ x 7½

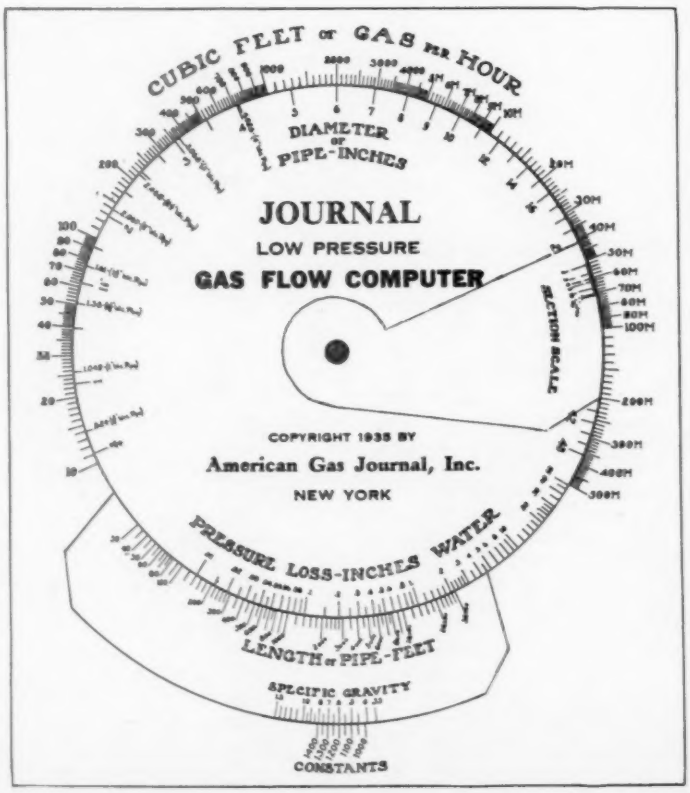
High Pressure Computer Range:

Cu. Ft. of Gas Per Hour—100-10,000 M
Diameter of Pipe Inches ¾-30
Difference in Absolute Pressure—Lbs. per sq. in. 1-500
Sum of Absolute Pressures—Lbs. per sq. in 2000-20
Specific Gravity 1.5-.35
Length of Pipe—Feet 100-5000
Length of Pipe—Miles 1-250

Low Pressure Computer Range:

Cu. Ft. of Gas Per Hour—10 to 500 M
Pipe Diameter ¾" to 48" (including standard and actual weight up to 4")
Pressure Loss Inches .01-10.
Length of Pipe—Feet 30-30,000
Specific Gravity 1.5-.35
Constants 1400-1000

Price $3.50 Each. Postage Prepaid



AMERICAN GAS JOURNAL
53 Park Place, New York

Please enter our order for Computers as follows at $3.50 each, postage prepaid

....HIGH Pressure Computer

....LOW Pressure Computer

NAME .....

ADDRESS .....

Thermostat Companies Sales Organizations Consolidated

Consolidation of the sales organization of Robertshaw Thermostat Company, Youngwood, Pa., and its affiliate, the American Thermometer Co., St. Louis, Mo., has been announced by John A. Robertshaw, vice-president and general manager. Mr. Robertshaw also announced the election of H. T. Ryan as a vice-president. Mr. Ryan, formerly Robertshaw sales manager, will assume managerial duties relating to the activities of the two companies and another affiliate, Grayson Heat Control, Ltd., Lynwood, Calif.

John A. Robertshaw

H. T. Ryan

The merger of the sales organizations resulted in the establishment of a number of new positions. T. T. Arden, formerly sales manager of American Thermometer Company, has been named sales manager in charge of domestic appliance control sales. Glenn Bowman has been appointed manager of the East Central division; J. E. O'Hagan, manager of the Central division; Frank Post, manager of the Eastern division; and M. S. Unger, manager of the home office division and export manager.

Sales of all three companies west of the Rocky Mountains will be handled by Grayson Heat Control, Ltd., under Louis H. Decker, manager at Lynwood, and Hal Singleton, sales manager.

A new sales division for the three companies to market commercial and industrial controls has been created under the direction of Walter D. Crouch, sales manager. Mr. Crouch formerly served as manager of the Eastern division for the Robertshaw Thermostat Company for a number of years; also as sales manager of the Industrial division.

Mr. Robertshaw stated that the object of the new sales operation was to increase the effectiveness and the facilities of a sales-engineering service and to improve the existing service rendered all gas appliance manufacturers through the three factories. Geographical locations of these factories are such, Mr. Robertshaw stated, that excellent service can be rendered all accounts in the United States and Canada and the new sales operation is expected to enhance the value of the plant locations.

Directors Elect Homer Britton V. P. of Cleveland Co.-Operative Stove Co.

As a climax to 26 years of service with the Cleveland Co-operative Stove Company, Homer Britton was elected vice president and general foundry manager of the company at the February meeting of its board of directors.

Mr. Britton's career with the Company began with his work as general office clerk, and he progressed through the positions of timekeeper and assistant foundry manager. In 1919, when the new foundry was built, containing the most modern equipment for the manufacture of light grey iron castings, Mr. Britton was made foundry manager.

Illinois Iowa Power Company Promotes CP Ranges with Colorful Billboards

The cut above shows effective billboard displays used by this Company to promote the sale of C. P. Ranges. Using four color effect, the background is a yellow and orange sunburst, the word "Gas" is in red, other lettering in black. The signature is white on red background. This display was designed by William H. Matlack of the Company's Sales Promotion Staff.

INDUSTRIAL GAS BOILERS
Tubular or Flueless
¾ to 45 H.P.

P. M. LATTNER MFG. COMPANY
CEDAR RAPIDS, IOWA

Bryant Enters the Gas Range Automatic Oven Lighter Market

The Bryant Heater Company, Cleveland, Ohio, announces that arrangements have been completed between the Roberts Brass Manufacturing Company and The Bryant Heater Company for the manufacture and sale of "Powerstat" oven controls.

Mr. Earl Roberts, formerly president of the Roberts Brass Manufacturing Company, will continue to serve the industry as manager of the Appliance Lighter Division of The Bryant Heater Company. With Mr. Roberts in this capacity, the continued personal attention of one of the pioneers in the lighter field will be assured. The Bryant Heater Company will employ the Bryant ignition principle and coil they have so satisfactorily used for years on their gas heating equipment.

Bryant laboratory and lighter experts have been busily engaged in adding their latest developments to the former Roberts lighter. Improved lighters of all types, including constant gas, cycle gas and electric ignition systems are now available to the industry. Bryant's redesigned and improved electric lighter, on which extensive tests have been made, will be of special interest to the industry.

A descriptive folder covering the three models of the Bryant "Powerstat" gas control is available upon request.

Jumbo Meter Tested

The Gas Meter Shop of San Diego Consolidated Gas & Electric Co. has conducted tests on the largest dry type meter ever built. A product of Sprague Meter Company, it is 4 feet wide, 5 feet high, and 3 feet deep.

Sprague No. 20 Industrial Meter

The test is made because of the large quantities of gas available due to the proximity of the holders to the high pressure transmission line terminals. When measuring gas at high pressure, this meter has a capacity of 150,000 m.c.f. an hour, or enough to take care of 10,000 domestic consumers—approximately a population of 30,000 people.

LOST

Millions of cubic feet of Illuminating Gas.

FOUND

Thousands of the Gas Leaks that caused the loss.

BY

NEW ENGLAND FORESTRY SERVICE Inc.
75 Federal Street
BOSTON MASSACHUSETTS

Write Us For Further Details

"Trees, like humans, respond to proper care." **© 1935**

New Officers and Directors of The New England Gas Association

Elected at 13th Annual Business Conference at Hotel Statler, Boston, on February 16

Officers

President: R. J. Rutherford, Worcester Gas Light Company; *First Vice-President:* J. A. Weiser, the Newport Gas Light Company; *Second Vice-President:* C. G. Young, Springfield Gas Light Company; *Treasurer:* F. D. Cadwallader, Boston Consolidated Gas Company.

Directors

Immediate Past President: George S. Hawley, The Bridgeport Gas Light Company.

Directors-at-Large: F. L. Ball, New England Power Association, Boston; W. C. Bell, New England Power Association, Boston; N. B. Bertolette, The Hartford Gas Company; F. D. Campbell, New England Gas & Electric Association, Cambridge; C. H. Cummings, The Industrial Appliance Co. of N. E., Boston; E. M. Farnsworth, Boston Consolidated Gas Company; R. L. Fletcher, Providence Gas Company; F. M. Goodwin, Boston Consolidated Gas Company; I. T. Haddock, Cambridge Gas Light Company; D. H. Levan, Lowell Gas Light Company; H. B. Noyes, Manchester Gas Company; H. R. Sterrett, New Haven Gas Light Company; G. W. Stiles, Portland Gas Light Company; John West, New England Power Association, Boston.

Clerk: Clark Belden, Executive Secretary, The New England Gas Association.

Division Chairmen

The following men, as next year's Division Chairmen, are Association directors, having just been elected by the members of their respective Divisions:

Accounting: H. W. Greenhalgh, New England Power Association, Boston; *Industrial:* C. C. Ogren, Eastern Appliance Company, Boston; *Manufacturers:* G. D. Yeaton, Detroit-Michigan Stove Company, Boston; *Operating:* L. E. Knowlton, Providence Gas Company; *Sales:* J. L. Johnson, Providence Gas Company.

Eastern Natural Gas Regional Sales Conference

This conference, under the chairmanship of R. E. Williams of the Binghamton Gas Works, was held at Roosevelt Hotel, Pittsburgh, March 2nd and 3rd.

An interesting and instructive program for each morning and afternoon session was coupled with a get together luncheon each day.

Among the papers delivered were:

What Is Essential in Selling?; F. X. Mettenet, Chairman, A. G. A. Commercial Section, The Peoples Gas Light and Coke Co., Chicago, Ill.

Gas in New Homes and Housing Developments; Walter C Beckjord, V. P. and Gen. Mgr., Columbia Gas and Electric Corp., New York, N. Y.

Gas Heating Equipment Available for New Homes; H. Leigh Whitelaw, New York, N. Y.

Then and Now with National Advertising; Chas. E. Bennett, President, Manufacturers Light and Heat Co., Pittsburgh, Pa.

Training Employees and Dealers for Greater Sales; Howard Williams, Trade-Ways, Inc., New York, N. Y.

Gadgets, Women and Ranges; F. M. Houston, Chairman, A. G. A. Domestic Range Committee, Rochester Gas & Electric Corp., Rochester, N. Y.

The 1939 Gas Water Heating Sales Program; John W. Clark, Chairman, A. G. A. Water Heating Committee, Stamford Gas & Electric Division of Connecticut Power Co., Stamford, Conn.

Gas Refrigeration for 1939; O. J. Haagen, The Ohio Fuel Gas Co., Columbus, Ohio.

Promoting Non-Residential Heating; W. R. Lacey, Merchandising Mgr., Bryant Heater Co., Cleveland, Ohio.

At the Home Service Forum the speakers were: Hulda Ungericht, Home Service Director, The Ohio Fuel Gas Co., Columbus, Ohio; Flora G. Dowler, Home Service Director, Binghamton Gas Works, Binghamton, N. Y.; Ruth Acton, Home Service Director, Dayton Power and Light Co., Dayton, Ohio.

HYTEMPITE
(Reg. U. S. PAT. OFF.)

A Plastic Air-setting High Temperature Cement for Bonding Refractory Brick and Shapes

Superintendent of a large New England gas works informs us: "We have used HYTEMPITE for the past 12 years for laying the silica brick walls of our retorts and have never known a failure. We find HYTEMPITE meets every requirement for a high-temperature cement, and we never need to worry about the results."

Florida gas plant superintendent says: "We have tried all kinds of high-temperature cements, but none equals HYTEMPITE."

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Distributors with Stock and Service in every Industrial Center

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Position Wanted—Gas Meter Repairer

I would like a position as a gas meter repairer or supervising a gas plant that wishes to repair its own gas meters. I am thirty-three years of age. I have had sixteen years of experience in the following: Gas meter repairer, gassing, and proving gas meters. I can obtain any references regarding my previous employment. Address Box 109, c/o American Gas Journal, 53 Park Place, New York City.

A Book for Gas Appliance Salesmen

Domestic Gas Appliances by A. M. Apmann. Gives practical working knowledge of the technology of appliances and characteristics of fuels. Ranges, Water Heaters, House Heating and Refrigeration are fully discussed. 238 pages, many illustrations, stiff cover. Special close-out price, 50c. American Gas Journal, 53 Park Place, New York.

Progress in Reducing Gas Production Costs

(Continued from page 32)

room for improvement. Small plants with high cost may be able to reduce their costs by as much as 20c per M by changing to butane air gas.

Murdock and Lowe showed all the functions of the coal gas and carbureted water processes of today, except as these have been somewhat refined. Fundamentally the processes remain much the same today. Changes made have been in the addition of mechanical devices which were not used at the start.

The use of oxygen has been suggested several times in the past few years. From studies I have made I cannot see where oxygen fits into the picture at all. The same applies to complete gasification of coal.

The only possibility of further reductions in production costs that I can see is by-products. Convert our plants into chemical plants and produce valuable by-products. This applies particularly to water gas. Our coal gas process takes raw coal and upgrades it into gas, coke, tar and ammonia, all of which are more valuable than the raw coal. If it were not for the revenue received from the sale of coke, tar, and ammonia, the production cost of coal gas would be twice what it is. I believe that it is possible to take a low grade of residium oil such as you are using now and upgrade it into motor fuel, gas and coke. The gas and coke can be used for making carbureted blue gas and the motor fuel can be sold. The amount of motor fuel made by the manufactured gas industry by such operation would be less than 3% of the present consumption.

Research

The extensive introduction of natural gas in the past ten years has practically stopped research work in connection with manufactured gas. We have never had any organized research in this country such as they have in England. The Institution of Gas Engineers has a Research Executive Committee which directs research conducted by Leeds University. They have done some excellent work on the following:

Steaming Vertical Retorts.
Backrun Process for the Manufacture of Carburetted Water Gas.
The Controlled Operation of a Carbureted Water Gas Plant.
The Use of Oxygen and High Pressures in Gasification.
Synthesis of Gaseous Hydrocarbons at High Pressure.

Dr. Dent of Leeds University sends me copies of their reports. I have found them most interesting and instructive.

I believe that we should have a similar plan of organized research for the gas industry in this country similar to that in England.

Gas For New Homes

(Continued from page 21)

Overall Decrease 29%

There is a definite trend today, throughout the country, in the building of small homes that range anywhere between $3,000 to $6,000. These small homes are a "natural" for gas heat. In many instances, warm air furnaces with blower, are utilized for the heating of these buildings. Since the homes are small and compact, and thoroughly insulated, they present a small operating cost with gas. The majority of them are built without basements, and therefore, a utility room in the center of the house is used for the heating equipment. Surely the noise from an oil burner in such a compact house would never be tolerated. These oil burners are too large, noisy, and costly for the small jobs. The high upkeep and servicing on these burners goes on year after year, irrespective of their size and type of home in which they are installed. Moreover, they present a low operating efficiency due to their size.

The gas companies not concentrating on these small houses are certainly missing a bet. You ask, "Why, Gas Heat in New Homes?" Gas *MUST* go in new houses because the buyers of new homes today, in visiting model houses throughout the country, are impressed with the equipment used therein. In their estimation, the new homes represent the very latest and modern type of building and equipment. If oil house heating and water heating equipment is found in these model homes, there can be but one answer for the prospective buyer; to believe that oil is the modern heating method. Therefore, secure the *ALL-GAS* house to impress potential buyers of the latest thing in home utilities.

Future of Gas House Heating in 1939

Bernard L. Johnson, Editor of "American Builder," forecast a constructive program approaching the 1939 level of 500,000 non-farm residential units, public and private. Prophesying the best year for contractors and operative builders in a decade, he forsees a 25-35% increase in private residential building. Moreover, he points out, the U. S. Housing Authority's huge program of 50,000 to 75,000 units will get underway. It is estimated that 325,000 to 350,000 family units were built last year. How many of the 1939 *new homes* will you secure?

In summation, you are all familiar with the general, and I hope, nationally accepted slogan of "JOIN THE SWING TO HOUSE HEATING BY GAS". Nothing more appealing to direct action could be placed in so few words. Therefore, why don't *you* JOIN THE SWING TO THE NEW *ALL-GAS* HOUSE—it is rightfully yours with a little effort on your part. *Don't let anybody take this load away from you!*

SWING IT TO GAS!

A.G.A. Conference On Industrial Gas Sales

The A.G.A. Conference on Industrial Gas Sales is to be held at Hotel Statler in Cleveland March 27 and 28th.

Among the subjects to be covered by addresses will be: Getting the Most From Outside Sales Aids; Promoting Non-Residential Sales Through Employee Help; Lacquers ,Japans And Other Metal Finishes As A Field For Industrial Gas; Sales Possibilities in Dowtherm Boilers; Capitalizing On Immersion Boilers And Water Heaters; The Present Status of Prepared Atmospheres In Industrial Heating; Practical Gas Rates For Industrial Customers; Recirculating Air Heating For Industrial Furnaces; Presentation Of New Material On High Temperature Burners And Combustion; Selling More Industrial Gas—And At A Profit.

There will be panel discussions on: Industrial Air Conditioning, Ceramic Firing, Food Manufacturing, Non-Ferrous Metal Heating, and Ferrous Metal Heating.

Frank H. Trembly, Jr, of the Philadelphia Gas Works Co. is Chairman of the Industrial Gas Section.

Local Management for Offices in Tampa Gas Co.

The directors of the Tampa (Fla.) Gas Co. at their annual meeting, elected Tampans to all the offices of the company, displacing out of town directors who have hitherto held three of these offices. The directors stated their desire that the company have local officers.

E. P. Taliaferro was elected vice-president, H. P. Anderson treasurer and Mrs. Annie E. Smith secretary. All are Tampans. Mr. Anderson and Mrs. Smith have been with the company more than 20 years, and Rosco Nettles, president and manager, has served for a much longer period, providing entirely "home town" management.

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YOU *can* keep a good pipe down! Witness several cities with cast iron distribution mains in service that were laid a century ago, equalling in life the gas industry itself. Today's cast iron pipe is an even better product. Today's *mechanical joint* cast iron pipe makes a permanent, swiftly-assembled, *bottle-tight* line under modern operating conditions. All mechanical joints, made by CIPRA members, are based on the stuffing-box principle.

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CAST IRON PIPE

THE STANDARD MATERIAL FOR UNDERGROUND MAINS

For 103 years this cast iron gas main has served the City of Boston. It was recently uncovered for inspection and here it is—good as new.

Just one tool! A ratchet wrench and common labor are all you need to assemble the time-tried and proved bottle-tight mechanical joint.

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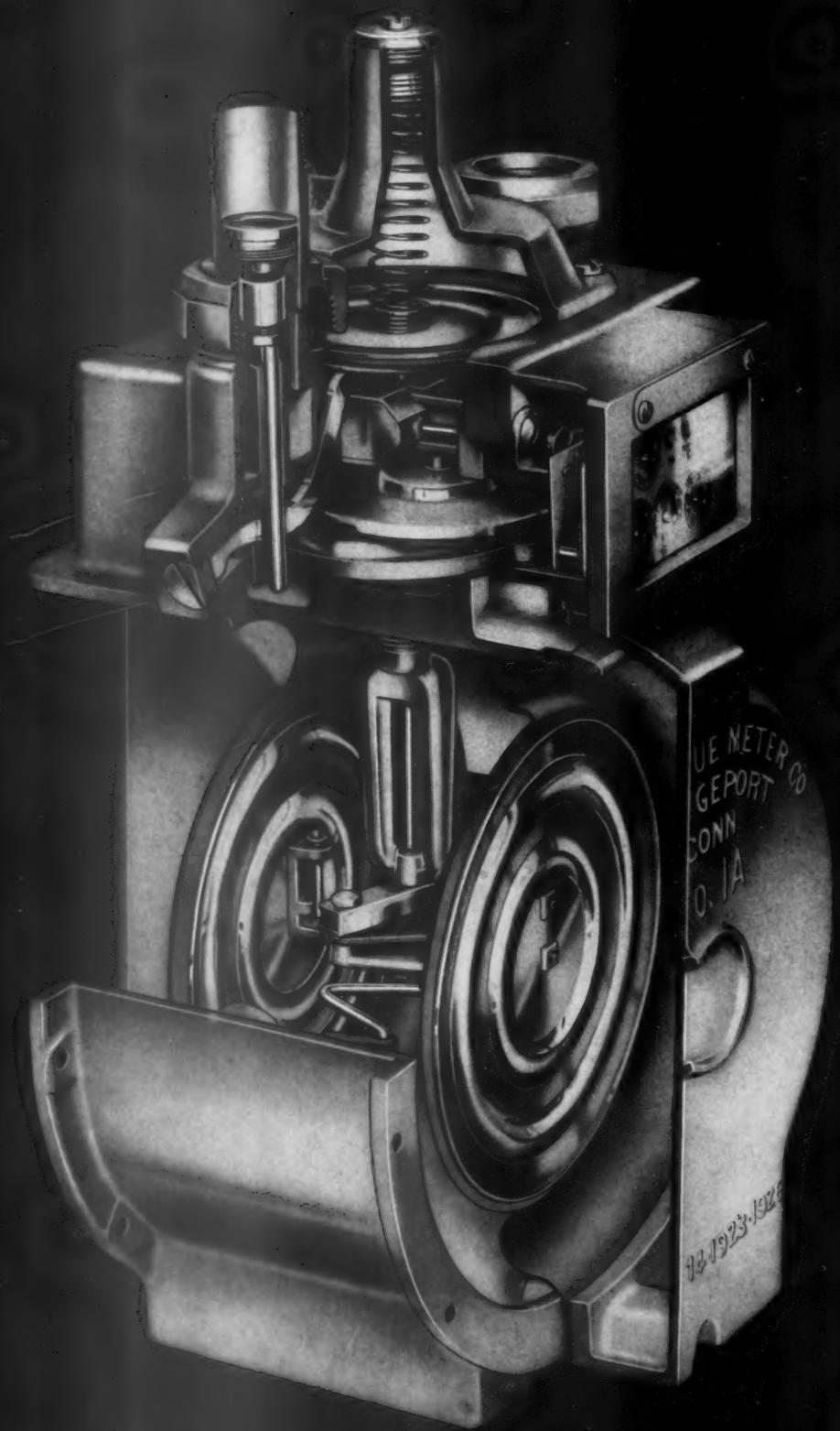

Here it is!!

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